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# SUBCONSCIOUS FACTOR IN MEDICINE.

*Delivered before the Devon and Exeter Medico-Chirurgical Society on Oct. 19th, 1927,*

BY BEDFORD PIERCE, M.D., F.R.C.P. LOND.,
CONSULTING PHYSICIAN TO THE RETREAT, YORK, AND EX-PRESIDENT, ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

FROM time immemorial man has realised that mind is not limited by consciousness. Plato says: "In all of us, even in good men, there is a lawless wild-beast nature, which peers out in sleep." I believe we owe to Savage the simile of the iceberg; the conscious mind is that part of the iceberg seen above water, but the greater part, at least five-sixths of the whole, is unseen below the surface, and it is this which is most dangerous to mariners. Coleridge, whose poem Kubla Khan was composed during sleep, considered that the greater part of mind was outside consciousness.

These views implied some degree of mental activity in the mind apart from consciousness, but only in our own time has a theory of this activity been developed and its application to medicine recognised. The beginnings of this advance were in 1880, when Dr. Josef Breuer, a Viennese physician, conceived the idea that hysterical symptoms might be dependent on past experience, and discovered a new method of treatment. A girl suffering from severe hysteria was hypnotised, and whilst in the hypnotic state she was asked to search her memory for incidents that arose when she had nursed her sick father. She was induced to live these scenes over again and the hysterical symptoms disappeared for good. This preceded the investigations of Charcot and Janet into the same subject. In 1895 Breuer, in conjunction with Dr. Sigmund Freud, published the "Studien über Hysteria" and later Freud, following his own line, developed his theory of the unconscious and devised the process of psycho-analysis. Such was the beginning of the modern psychology, which has altered our outlook on human life in so many directions.

In the title of this paper I have used the word "subconscious" in a general comprehensive sense, not wishing to be bound to any psychological theory. It is quite unnecessary to give any account of modern views; the teachings and the language of Freud are in every text-book, they permeate our novels and magazines, and are even shown in the moving pictures. I may be excused, however, if I mention one or two assumptions of modern psychology.

The first is that desires and experiences unacceptable to the personality can be repressed and entirely forgotten. This repression is stated to be an active process and not merely a passive forgetfulness. It is not due to conscious voluntary effort. The second assumption is that the repressed material is not dormant or quiescent within the unconscious mind, but rather active and disturbing; it finds expression in a number of morbid symptoms or peculiarities, and is the source of anxiety, phobias, and hysteria.

It is extremely difficult to describe a case properly. The details are so voluminous that some kind of abstract is inevitable. Yet it is easy to give a distorted view by the mere omission of particulars that seem unimportant. An account, moreover, can give little idea of the quantity of work involved. It is often impossible to relate a case without a breach of confidence, whilst to disguise a story is very unsatisfactory. Further, in this department of medicine reports are apt to be coloured by the personality of the writer. Lastly, it is often impossible to follow up cases sufficiently to estimate fairly the results of treatment.



## SOME ILLUSTRATIVE CASES.

I am indebted to Dr. Hugh E. Wingfield for permission to publish the following case, concerning which I have also some personal knowledge.

A girl of 14 complained of nervous fears of full ten years' duration. In company and at boarding school there was little amiss; but at home, where she had her own bedroom, she slept badly and had night terrors. She would not go into certain rooms alone and she was seen to look furtively behind her, apparently to see whether anyone was following her. She would bang doors hard as if she were shutting someone out. She was intelligent and could not say why she did these things.

Under treatment by Dr. Wingfield she was able to recollect childish incidents which had been utterly forgotten. They were, briefly, as follows. When 4 years of age she had a French nurse who was fanatically religious and who told her that unless she kept a crucifix under her pillow the devil would certainly get her! By degrees every detail was recalled—the nurse's staring eyes and her strange conduct. It so happened that soon after this the nurse had become insane. The child had personified the devil as a giant negro with a big stick—a terrible being to meet, especially in the dark. The clearing up of the cause for these fears resulted in a rapid and complete recovery. Ten years have elapsed and there has been no return.

There can be little doubt that if these forgotten incidents of early childhood had not been elicited the phobias would have continued and made life miserable. The parents were altogether unaware of the conduct of the nurse, and the child herself was too young to be able to complain.

Dr. Rivers's classical case of claustrophobia is another good example.

A case of hysterical vomiting may also be mentioned:—

A clever and apparently healthy school-girl was troubled with persistent vomiting. This continued until a forgotten early incident was called to mind. When a very small child an elder sister had compelled her to look at a mummy which her father had brought back from Egypt and thereupon she vomited. Though the episode was forgotten the habit of vomiting continued until the conscious revival of the experience produced a cure.

These cases sufficiently illustrate the important conclusion that long past experiences quite beyond unaided recall are a cause of morbid symptoms. They also show, contrary to the teachings of the pure Freudians, that such experiences are not necessarily sexual in nature. They may be the result of conflict between other instincts, as was abundantly shown during the war when psychoneuroses of many kinds arose from the conflict between duty and self-preservation, or, in other words, between the herd- and the ego-instincts.

### *The Sexual Factor.*

We must not, however, underestimate the great importance of the sexual instinct in psychopathology, especially if the term sex is extended to include maternal instinct. Though most authorities dissent from Freud's theories of infantile sexual experience, it cannot be denied that we find many of the symptoms he describes during the investigation of our patients. That these symptoms are explained by an œdipus-complex or by narcissism is, however, doubtful.

A married woman, aged 42, with no children, consulted me on account of insomnia, intolerance of loud sounds, noises in the head with ringing of bells, fits of weeping, inability to attend to duties, and loss of interest in life. She feared she was going mad, and would become suicidal. The duration of her illness was two years. The uterus had been stitched up to prevent retroversion. Had had many changes of scene. Had tried Christian Science. Had recently had six weeks Weir Mitchell treatment.

*Previous History.*—Unhappy childhood. Mother and step-mother both alcoholic. At 35 had begun morbid blushing. Naturally artistic, musical, and much in demand socially. Husband 13 years older. He did not care for gaiety but was not jealous. Patient was never pregnant. General health good.

So far the case seemed an ordinary depression, possibly connected with the operation and approaching menopause. One fact suggested a repressed complex. Since her illness she had slept apart from her husband, and she mentioned incidentally that when she said good night she broke into a fit of weeping.

*Elicited.*—Want of harmony with husband. She had long cherished a secret affection for another man and dwelt on it in day-dreams; there had been no impropriety, but she persuaded herself it was a beautiful experience. Jung's word analysis gave a long reaction to the word "sympathy." There were also long reactions to the words "despise," "low," "big," "long"—which referred to repressed facts of personal history. After about five weeks analytical treatment there was an emotional outburst when a strange and isolated incident was recollected. This brought to light the internal conflict between her duty to her husband and her ideals (for she was a woman of high principle), and her lower desires and unfulfilled wishes.

The genesis of the greater part of her symptoms was now cleared up. The neurosis in a sense gave relief, it entailed long absences from home, it gave ample opportunity for self-pity, and the indulgence in pleasurable day-dreams. The patient herself was quite unaware that these facts had any relation to her illness; indeed, the possibility had not entered her mind. Fortunately, she was a woman of character and determination, and when the position was made clear she faced it courageously. The sleeplessness disappeared, she became cheerful, and was soon anxious to return to her husband.

This happened 20 years ago and there has been no relapse; and she is leading an active and useful life.

Here is a case of automatic wandering:—

A lecturer at a technical college, after a bad night, disappeared from home at 11 A.M. leaving a note saying he had lost all hope. He also left an obscure message in German referring to departure for ever and ever. He returned on his own accord at 7.30 P.M. and could not say where he had been until he had found himself on a seat over 300 yards away. He was cold, footsore, and had worn out the backs of his trouser legs with walking.

There had been two previous attacks, the first when, after a difference with his father as a boy, he had been lost some hours and could not remember what he had done. The second attack occurred six weeks after marriage, when he was depressed and confused and said something to the effect that it would be easy to strangle his wife. This he could not afterwards recollect. His brother-in-law thought him hysterical. He rapidly recovered and gave a lecture as usual the same evening.

There was no history of fits or of petit mal. He was popular and very hard working.

His medical man had discovered the immediate cause before I was consulted. Although married, he had abstained from sexual intercourse apparently for financial reasons. When normal marital relations were established there was complete relief and the depression and irritability passed off.

Why under such circumstances mental dissociation should occur I do not know. It is evident that in this individual any strain tended to be expressed in this way.

Sometimes investigation discloses internal strains for which no direct relief is possible. One of the most unsatisfactory is the homo-sexual tendency, where the company of the same sex alone gives gratification. Some have attempted to explain the tendency by assuming a diversion of natural instinct through a "mother-fixation" in early infancy. I am inclined to think it is really due to a congenital disposition of sex elements. However it arises, many of these persons are condemned to perpetual repression, and unless they understand their own peculiar nature, life is hard and hopeless. When, however, the position is grasped they can devote themselves to hard and useful work and find consolation in altruistic effort. Similar difficulty arises in marital incompatibility, which, but for careful investigation by the physician, might not have been recognised as the cause of a neurosis.

### CONTENT OF THE SUBCONSCIOUS MIND.

When we attempt to consider the nature of the subconscious mind we are at once in very deep water, and may easily be carried away by metaphysical speculation. The Freudian school habitually use the term "the unconscious," thereby suggesting an entity with special functions. Freud is a determinist, and for him every symptom has a cause in the experience of the individual, and he concludes that there is some physical basis in the nervous system for every mental process. The unconscious therefore contains primitive ideas and instinctive desires as well as repressed material. The deeper the analysis goes the more the native instincts are laid bare. Thus successive layers as it were of character-formation are peeled off until the natural elementary mind is reached. This is devoid of morals and is only influenced by the pleasure-pain principle. It seeks the gratification of its own desires regardless of anything outside. Freud further teaches that if the investigation be carried far enough the instinct concerned is found to be sexual in every case.

The Zürich school, founded by Jung, finds in the unconscious elements that are not individual and personal. Jung states that if the analysis be continued after all the individual experiences are elicited, new elements appear which may be dangerous. He assumes the existence of a "collective unconscious," and says "We are now obliged to differentiate a personal unconscious and an impersonal one, the absolute or collective unconscious, which is detached from what is personal and is absolute and universal." Speaking of the content of this he says: "The primordial images are the most ancient and deep thoughts of mankind. They are feeling just as much as thought, and might be termed thought-feelings." Here Jung finds the common source of myths, primitive religions, and the idea of soul, spirit, god, fertility, might, prestige, and, strange to say, curative remedies. Hence it would seem that the widespread notion that every disease must have a specific remedy, and every poison an antidote, comes from the collective unconscious common to all men.

There is no doubt that our unconscious mind helps us in our thinking. I suppose all of us have found that after a good night's rest difficulties are often solved that formerly had baffled us. Readers of "Across the Plains" will remember that Stevenson tells us the dramatic window scene in "Dr. Jekyll and Mr. Hyde" came to him in its entirety whilst he was asleep and dreaming.

Some years ago, when on holiday, I met a Scottish manufacturer who told me that one night he awoke, finding himself declaiming a long poem. His wife urged him to write it down at once, but he could only recollect one stanza—

> And what are thoughts,
> But birds which light and fly?
> And what are words
> But traps to catch them by?
> Many are dead and cast to Lethe River
> But some survive as joys encaged for ever.

My friend had never written a line of poetry in his life; he could recollect no source. I made inquiry through a literary paper and could trace nothing like it. It is, of course, possible that a memory stored in his mind had reappeared in these striking lines, and it is said there is nothing new under the sun. This explanation, however, seem insufficient.

Rivers says:—

"Many lines of evidence are converging to show that all great accomplishments in human endeavour depend on processes which go on outside those regions of the mind of which we are clearly conscious. There is reason to believe that the processes which underly all creative art, literature, or science take place unconsciously or at least unwittingly. It is an interesting point whence comes the energy of which this work is the expression."

All will probably agree that some kind of thinking takes place in the subconscious mind. The awkward phrase "unconscious cerebration" represents an actual process. In a recent number of the *Journal of Mental Science* (July, 1927) Dr. Winslow Hall refers to the subconscious measurement of time, and he has conducted a series of experiments which show conclusively that a time-sense exists and that it works best below the threshold of consciousness. He also refers to the extraordinary accuracy of time-measurement shown in post-hypnotic suggestion.

This strange unexplored region of our minds contains stored memories of countless unremembered experiences, and in some way these are integrated to form our characters. When we are confronted with an emergency our response is rarely thought out, but is usually spontaneous; its general nature is predetermined by decisions and opinions taken long ago and apparently forgotten. But this conception gives

no help in understanding what goes on below the threshold. Whence come inspiration and originality? What directs the subconscious flow of thought? What launches our dreams? We may also ask whence comes the power to appreciate the three great concepts —truth, beauty, and goodness?

In attempting to look into these inner mysteries we can hardly see farther than Matthew Arnold in "The Buried Life"—

> "But often, in the world's most crowded streets,
> But often, in the din of strife,
> There rises an unspeakable desire
> After the knowledge of our buried life,
> A thirst to spend our fire and restless force
> In tracking out our true, original course;
> A longing to inquire
> Into the mystery of this heart which beats
> So wild, so deep in us, to know
> Whence our thoughts come and where they go.
> And many a man in his own breast then delves,
> But deep enough, alas, none ever mines:
> And we have been on many thousand lines,
> And we have shown on each talent and power,
> But hardly have we, for one little hour,
> Been on our own line, have we been ourselves."
>
> • • •
>
> "Yet still, from time to time, vague and forlorn,
> From the soul's subterranean depth upborne
> As from an infinitely distant land,
> Come airs, and floating echoes, and convey
> A melancholy into all our day."

Must we always assume that the mental processes which go on without our knowledge are regressive in nature and represent the "wild beast" within us all? When dealing with subject matter outside our ken we cannot be sure of anything. Yet there is evidence that the unconscious mind can be trained. Stevenson tells how he trained his mind so that dreams, which at one time were distressing in the extreme, became useful, and he speaks of the help he received in his work from "the little people of his dreams." So far as dreaming is concerned, I feel sure that dream incidents are not merely the wish-fulfilments of instinctive desires. Patients have often told me they never dream, and yet, when asked to write down their dreams for the purpose of analysis, almost invariably they bring plenty of dream material. Moreover, I am not sure that this is solely the expression of the unconscious mind, and I fancy that patients will sometimes in good faith dream in accordance with expectation.

A single woman consulted me on account of obsession of a very unpleasant nature which caused her constant distress. She had been a cheerful, active church worker and had nursed her parents through long illnesses in the most unselfish way. Many years before she had been engaged to be married, but the engagement was broken off by mutual consent. This she had never regretted; the man was now married happily and had children. In the course of an analysis these facts and many other details of her personal history were elicited and, as so often happens, it transpired that all questions of sex had been taboo during her childhood and adolescence. These were frankly ventilated, and before long she began to dream repeatedly of her former fiancé, Mr. S. Finally, she came to me with a dream to the effect that she had met Mr. S. in a large store and he was very attentive, but she did not respond to any advances he made; and then he went to another department and bought her a doll.

It is rare for the symbolism of a dream to be so transparent as this, yet the patient did not at first grasp its significance. I had an uncomfortable feeling that the therapeutical conversations had, shall I say, prepared the unconscious mind so that the dream appeared.

Shortly after this the patient improved and remained much better, but was not really well for many years.

### MENTAL "MECHANISMS."

Freud, in elaborating his psycho-analytical theory, has introduced a number of technical terms to describe mental processes which take place unconsciously. These are now so familiar that they require no explanation. By repression painful conflicts become unconscious, and the repressed material causes by conversion, hysterical symptoms; by dissociation, fugues; by projection, phantasies and delusions; by regression, a return to infantilism, and so forth. On the other hand, by sublimation, the repressed energy finds an outlet in more healthy ways, as hard work or altruistic effort. These terms are part of a large vocabulary of words in everyday use in Freudian psychology. I have always felt an objection to the use of words having a spatial meaning in reference to mental processes, though they may be unavoidable. Breuer says: "All too easily one gets into the habit of assuming that behind a substantive there is a substance." That we are using metaphors in speaking of mental processes is forgotten and the metaphor itself is manipulated as a material thing. This has happened to the terms conversion, projection, substitution, &c. The widely used term "mental mechanism" is objectionable in describing the activities of the mind. Moreover the Freudian theory seems to imply there is a conservation of mental energy. Thus Freud says: "In both cases the libido behaves like a stream, the principal bed of which is dammed; it fills the collateral channels which until now have been empty." I find such terms misleading. Can there be any mechanism in mind, or is it proper to assume that repressed ideas must find an outlet, and that if diverted or held back, they are governed by the laws of hydrostatics?

Mental energy is something living, and we must not assume that it is fixed or limited in quantity until some means of measuring it has been discovered.

The late Dr. Maudsley says in one of his lectures:—

> "An impassable gulf lies between the measurement of the perceived energy—that is the objective energy which can be handled and for which all the world can agree on a common unit of measurement—and the subjective state, which is intangible and for which no common unit of measurement is possible. How measure the thrill of a pang of grief? The heat of a flash of rage? The corrosion of an envy? The vibrations of a ray of hope? The leap of an inspiration? How sound the depths of sympathy? or estimate in millimetres the height of a vaulting ambition?"

### ANALYSIS AS A THERAPEUTIC AGENT.

The term psycho-analysis should be restricted to the technique introduced by Freud, for it presumes the validity of his theory of the unconscious. The process consists of "free association," in which the patient frankly and unreservedly gives expression to any ideas that enter his mind. This is supplemented by dream analysis, in which free association is applied to the material elicited from dreams. Any kind of suggestion is disclaimed. Thus Stoddart writes:—

> "The doctor says as little as possible, but merely keeps the patient to any line of association initiated by him (the patient). He tells the patient absolutely nothing and scrupulously avoids suggestion of any kind."

Stoddart adds, however, that it is permissible "to comply with his request to give an explanation of a psychical mechanism which has become obvious to him but incomprehensible." On the other hand, Freud himself speaks of the great psychical effort required by the physician to overcome the barrier created by repression. He also says:—

> "A psycho-analysis is not an unbiassed scientific research, but just a therapeutic invention. The physicians give in psycho-analysis every time to the patient the respective expectation-ideas by means of which he shall be able to recognise that which is unconscious and seize it . . . without such help no one can get on."

Evidently the master is sounder than his pupils. Surely it is obvious that during intimate conversations of an hour's duration five or six times weekly for months together, the physician continually employs suggestion, whether he wishes to do so or not. Moreover, the explanations he gives inevitably create a bias, and his own opinions must be slowly conveyed to his patient.

Although more than 20 years have elapsed since psycho-analysis was introduced its place in medicine is uncertain. It has achieved striking success in the treatment of intractable cases of hysteria and other psychoneuroses; but its use is limited, for it makes a great demand on both physician and patient. It involves such an extraordinary expenditure of time and trouble that only in very exceptional cases does it appear practicable.

Modifications of Freud's methods have been widely adopted, and, I have little doubt, will displace the original psycho-analysis. They may be called psychological or mental analysis, which is not limited in practice by any preconceived theory; moreover, suggestion is openly used. Some practitioners advocate hypnotism, as Freud did originally, and others aim at creating a quiescent half-conscious condition—the hypnoidal state—to facilitate analysis. In this state suggestion is not used directly to promote recovery, but indirectly in order to uncover the repressed ideas and conflicts. Often quite a few conversations suffice to elucidate these factors and render possible a new adaptation for life's demands.

Some mention must be made of "transference," a term introduced by Freud to denote the altered emotional attitude of the patient towards the physician. This may be either one of affection or of hatred. Freud and his school say that infantile sexual love is liberated, and is no longer fixed on the father or the mother, but is transferred to the physician. However this may be, there is no doubt that the physician frequently obtains an extraordinary ascendancy due to the patient's passionate regard for him. Analysts are apt to make light of this, considering it a mere episode in the course of treatment, which will pass away as the analysis progresses, but it is easy to see that delicate situations may arise, and the integrity of the physician may be challenged.

In the endeavour to understand a patient's conflicts we are frequently confronted with ethical problems. The physician cannot escape by saying that these are no concern of his, for the patient needs a new modus vivendi, and the situation has to be faced. Even though the physician offers no opinion and gives no advice, his own attitude to the ethical problems of life can hardly fail to produce an effect. Here is one of the greatest difficulties of analysis. Before we can recommend a patient to undergo this searching investigation we must know something of the analyst. The question is a delicate one. Judging from the published writings of certain psycho-analysts, their fitness for conducting the education of a young person is questionable. Which of us is really fitted to give an opinion on moral issues? Our medical education avails us little in these matters.

Another tendency that seems hurtful is the divorce of psycho-analysis from general medicine. I have heard of analysts who refused to make a physical examination and said that this must be done by some other physician. I have also heard of the prolonged analysis of patients with organic nervous disorder such as disseminated sclerosis. We must be physician to the whole patient—body and mind alike.

Though I have criticised the psycho-analytic theory, I do not wish to undervalue its contribution to medicine. It is true that some of the developments of the theory are so repugnant to common sense that the whole position is jeopardised. Sometimes, when we read psycho-analytical literature, we are amazed that medical men can give serious attention to such questionable material. It is not that I object to the frank discussion of the many indecencies that disturb the minds of our patients. The suffering caused by obsessions of this nature is often intolerable, and I have known a patient driven to suicide by them. It is rather the conclusions of the analysts themselves which seem to offend. Thus a patient dreamt he passed through a long tunnel and eventually came out into open and beautiful country. This was confidently interpreted by the analyst to be a symbolic expression of the personal experience of the patient whilst being born!

This is very unfortunate, for Freud has given to medicine a new orientation. The conception of an unconscious "flight from reality," by which persons faced with an intolerable situation escape by a psychoneurosis, is of real value. The process of re-education which leads a patient to recognise this, and consequently to face his underlying conflicts, is an important therapeutic procedure.

The problem, however, is not solved. At present it seems impossible to say why persons react in such diverse ways to these internal conflicts. One becomes hysterical, another has an obsession, a third a pseudo-epileptic fit, whilst a fourth may drink or take to drugs, or a fifth retreat from the world and live in a state of phantasy. Though the mental source of a symptom may be traced, it by no means follows that the tracing has therapeutic value. Analysis will throw light on the symptoms of general paralysis, but the disease process is unchecked.

It is essential in treatment that the patient be sufficiently intelligent to be able to coöperate, and he must be willing and anxious for relief. Analysis is rarely of value in persons over 50, as their habits of mind are set and their repressions entrenched. Depressed patients suffering from the manic-depressive psychosis are, as a rule, unsuitable, and analysis may precipitate suicidal tendencies. These limitations rule out a very large number of patients.

### ANALYSIS IN THE PSYCHOSES.

Authorities are agreed that analysis is of little value in the treatment of declared mental disease. The exploration of the unconscious mind, when practicable, may explain the strange ideas of the insane, but the explanation does not lead to improvement. This is disappointing, but not surprising. The essential feature in recovery after analysis is the ability of the patient to readapt himself to the newly discovered facts of life, and most patients with grave mental disease are unable to do this. So far as I am aware, only Jung has reported a full analysis in a case of dementia præcox. The analysis elucidated the symptoms, but the patient derived no benefit. This is the general experience.

Opinions differ on its value in confirmed obsessional cases of long duration. Several decided successes have been recorded, and one experienced analyst tells me that "really ingrained obsessions are the very mischief, but from their very nature they are always worth a trial." No doubt we shall all agree that many obsessional cases benefit greatly by a good plain talk without formal analysis.

In manic-depressive insanity one would expect success if the analysis is undertaken in the intervals between the attacks, for in this disease there is little impairment of health and the patients are often able and willing to coöperate. Stoddart is evidently sanguine and anticipates so complete a recovery that marriage and the procreation of children become justifiable. Yet in practice analysis is most disappointing in this disorder.

One case is interesting, as the patient is a scientific man, well trained in physiology and possessing an acute critical mind.

He had had several recurrent attacks, some episodes with excitement, and some with grave depressions and suicidal impulses. At my suggestion he consulted an analyst, and a month or two later he returned to the Retreat in a markedly excited state, expatiating at great length on his repressed ideas without any decent reservation, and declaring he was cured. He derided all who did not accept the new gospel. The analyst was much concerned, and wrote to me that it was as if a man undergoing laparotomy had jumped off the table and run about with his viscera hanging out! In a short time the patient improved again and the analysis was continued for fully three years. I have since had many interesting letters from this patient who is now well enough to undertake some responsible work, but he admits that he is not cured and has recently had another relapse.

### CONCLUSION.

As one looks back on nearly 40 years' practice one recalls many systems of treatment that have been tried and found wanting. Pushed by enthusiasts, they had their day and ceased to be. Is mental analysis but one of the cults which flourish for a time and are soon forgotten? Much that is taught, imposing though it seems, rests on a slight foundation. Its professors speak with confidence but lack the critical faculty. They postulate an unconscious which must ever be outside our comprehension, and give it a

wonderful vitality. Changes are said to take place within it which can never be demonstrated. That is hardly the way of science, and much of the present fabric is top-heavy. The whip of enthusiasm may keep the top spinning for a while, but the Freudian theory is inherently unstable.

Nevertheless, the new school of psychology have made a contribution to medicine of abiding value. They have shown the importance of subconscious factors and have convinced us that experiences which have apparently left no trace may still be potent and can influence our conduct unwittingly. We have learnt much about the meaning of symptoms, and the study of our cases becomes vastly more interesting. Anything which brings the physician into closer personal touch with his patients and requires him to give a more minute and careful attention to their complaints, anything that helps him to understand their personality, must be a real contribution to the art if not the science of medicine.

I will conclude with two quotations. The first is from my late friend Dr. W. H. R. Rivers, one of the clearest thinkers of his time:—

"For the physician who is not content to walk in the old ruts when in the presence of the greatest afflictions that can befall mankind, Freud has provided a working scheme of diagnosis and therapeutics to aid him in his attempts to discover the causes of mental disease and to find means by which it can be remedied. We can be confident that the scheme as it stands before us is only the partial truth and will suffer many modifications with further research; but that it takes us some way in the direction of truth seems to me certain."

The other quotation is by Miss May Kendall, of York, of whose critical ability I have a high opinion. She was kind enough to read an early draft of this paper, and sent me the following comment. After referring to the value of modern psychology in elucidating symptoms, she goes on:—

"But that is not all. The real evangel of the new psychologists lies in the word 'sublimation.' The mental hinterland which they call the unconscious is something more than a surrounding jungle, from which poisonous growths may spread into that little clearing, the self-conscious life of the ego. It is at worst a territory which, however wild and dangerous, may to a certain extent be reclaimed and made to further the ends of our deliberate intelligence. But it is also a great reserve, which may well contain infinite sources of healing and inspiration, as well as of peril and hurt. And though it offers no smooth high road, we may divine within it many almost imperceptible paths, by which messengers may come and go, and human beings may communicate with fresh reaches of the universe."

# FRACTURES OF METATARSAL BONES BY INDIRECT VIOLENCE.

## WITH SPECIAL REFERENCE TO AVULSION FRACTURE OF THE TUBERCLE OF THE FIFTH METATARSAL.

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A CERTAIN number of cases of fracture by indirect violence about the base of the fifth metatarsal bone have been recorded since the accident was first described by Sir Robert Jones,[1] but very little attention has been paid to the subject in surgical text-books. British writers have usually dismissed the matter with a general statement that most fractures of the metatarsal bones are caused by direct, or crushing, violence, and an occasional reference to Jones's paper. The obvious reason why the particular kind of fracture described by Jones was not recognised before 1902 is that diagnosis in most of these cases is possible only with radiography, a method which had only been available in surgical practice two or three years before the publication of the paper. It is difficult to explain the subsequent neglect of a class of fractures which must be fairly frequent, and of another kind of fracture—avulsion fracture of the tubercle of the fifth metatarsal bone—which also appears to be not uncommon.

The fracture described by Jones was defined as occurring through the base of the bone; but from the description given, and from the radiographic illustrations, it appears that in the five cases recorded in the paper fracture had occurred just beyond the anatomical base of the bone, and in a line with the anterior margin of the proximal intermetatarsal articulation, just beyond the main attachments of the strong dorsal and plantar ligaments which bind the base of the fifth metatarsal firmly to the base of the fourth metatarsal and cuboid bones. In this situation there is no displacement of the base of the bone, which remains in its normal position held by the ligaments; no crepitus is obtained. Sir Robert Jones described the fracture as being caused by a sudden impact of the whole weight of the body on the fifth metatarsal bone, whilst the heel is off the ground and the foot is inverted. He explains the mechanism thus:—

"The prominent base of the fifth metatarsal is closely bound to the cuboid and to the fourth metatarsal on every side. So powerful are these ligaments that dislocation of the base is the rarest of accidents. It is obviously easier to break the bone than to dislocate it. When the heel, therefore, is off the ground, the body-weight expends itself on the fifth metatarsal, rotating it slightly inwards. The opposition of this force takes place at its base, where the strongly attached ligaments resist its displacement. A fracture occurs, therefore, exactly where one would expect it to occur, and where our skiagrams illustrate. . . . As reference to the skiagrams will show, all the lines of fracture cannot be traced quite through the bone, but there can be but little doubt but that the fracture is complete."

W. M. Brickner[2] refers to a case published by F. S. Cotton and C. S. Sylvester,[3] in which the shaft of the fifth metatarsal bone broke whilst the patient was dancing, and to five cases, published by Cotton,[4] of fracture through the base of the bone; he also records two additional cases which occurred in his own practice. In both the latter cases, one a boy, aged 12 years, and the other a woman, aged 50 years, fracture occurred apparently on sudden inward twisting of the left foot. Brickner, accepting the explanation of the mechanism of the fracture given by Sir Robert Jones, remarks that fracture may occur (1) above the base; (2) across the widest part of the base, or a little posterior to this; or (3) through the tubercle of the base. D. N. Eisendrath[5] writes:—

"A number of cases have been reported where fractures of the metatarsus occurred in soldiers after long marches, or in jumping or dancing. In the latter two instances the injury is the result of indirect violence. Such fractures may be complete or incomplete. The second left metatarsal is most frequently involved in these painful foot swellings in soldiers. In indirect violence, such as follows dancing, jumping, or sudden twists of the foot, the fifth metatarsal is most often involved."

The few instances in the literature are all of fractures through the widest part of the base, or, more distally, at the junction of the base with the shaft. Brickner, however, without quoting instances, states that the fracture may occur between the tubercle and the rest of the base of the fifth metatarsal bone.

There is, however, another fracture of the base of the fifth metatarsal bone which has to be recognised, an avulsion of the tubercle from the rest of the base. This fracture is caused, in some cases at any rate, by a sudden contraction of the *peroneus brevis* muscle and may occur, as it occurred in some of our cases, whilst the foot is off the ground. In this fracture, also, crepitus is unobtainable; but for a different reason. Instead of the fractured surfaces being held in close apposition, the torn-off tubercle is drawn backwards by the attached peroneus brevis muscle, and tilted upwards in some cases so that there is a wedge-shaped space between the separated fragments, with the base of the wedge downwards.

In some cases, as in Case 1, when the œdema which results from the fracture has subsided, the separated tubercle is found to be freely movable behind the rest of the base of the bone.

*Uncomplicated Fracture of Tubercle of Fifth Metatarsal Bone.*

We refer first to a series of eight cases, five of which (Nos. 4 to 8) have been treated by one of us at the Lambeth Hospital during the last 12 years; in all these radiographic examination showed that there had been a separation of the tubercle of the fifth metatarsal bone, without any other injury to the foot. In Cases 1, 3, and 4 there was satisfactory evidence that fracture occurred whilst the injured foot was off the ground, so that there could not be any question of injury by sudden impact of the body-weight on the bone. In the remaining cases there was either no evidence that the foot was off the ground at the time of the accident or else a positive history of twisting at the moment, but the radiographic appearances were like those of the three other cases. We regard them all as being probably avulsion fractures, the result of muscular action.

CASE 1, as representing the personal experience of one of us, may be given in detail. Whilst walking quietly along the street, the left foot, when off the ground, was wriggled in the boot, because of a feeling of discomfort in the little toe. Whilst the foot was still off the ground, a distinct "crack" was heard, and a sharp pain was felt, accentuated as the foot came to the ground. It was possible to limp about 400 yards with considerable pain and difficulty. On removing the boot there was a localised tenderness just over the base of the fifth metatarsal bone, and a small, tense hæmatoma developed there within half an hour. By the following day a considerable ecchymosis had appeared beneath the skin on the outer side of the foot extending from the base of the fifth metatarsal backwards to the point of the heel. The foot was rested for 48 hours after the accident; on the third day it was possible to limp about, with considerable pain at times. The hæmatoma gradually subsided, leaving a small, localised, boggy area on the outer side of the dorsum of the foot. When the general œdema of the dorsum had passed away the broken-off tubercle, held between thumb and finger, could be moved easily. The pain subsided gradually, and three months later, when the first radiograph was taken, there was still a little difficulty in walking, with occasional and sometimes severe pain.

Dr. J. O. Harvey, who kindly undertook the radiographic examination, made the following report: "The base of the fifth metatarsal bone has been fractured through with some gaping displacement. There is little evidence, there is a suggestion only, of new bone formation."

Occasional pain was experienced during the next nine months; and 12 months after the accident the tubercle remained separate from the rest of the bone, and was still movable independently when held between finger and thumb. A second set of radiographs taken at this time showed that the space between the tubercle and the rest of the bone had widened, but there was a shadow representing some material which was beginning to fill in the gap. At the time of writing, just two years after the accident, there appears to have been some kind of solid union, and all inconvenience has ceased (Figs. 1 and 2).

CASE 2, communicated to us by Dr. A. H. Williams, was that of a woman of about 30. The patient was playing tennis on a grass court, and Dr. Williams writes: "At the time of the accident she was not, apparently, making any vigorous effort. I was standing at the side of the court watching the game, when I heard a loud pop, as if a stick had been snapped. The lady subsided on the ground and complained of acute pain on the outer side of her left foot. She was at once taken to her home and on examining the foot I found a considerable swelling over the base of the fifth metatarsal bone, which was very tender and painful. No crepitus could be obtained, but X ray illumination showed clearly the nature of the case. She was playing tennis again within 12 months, and now, 18 months after the accident, does not suffer any apparent inconvenience."

CASE 3 was that of a medical practitioner, aged 30, who was playing tennis. As he put his left foot to the ground he felt that it was becoming inverted, made an effort to save himself, and experienced a sudden sharp pain on the outer side of the foot. It is important to note that the patient was quite clear that the pain of fracture did not occur when he felt that he was stumbling, but whilst he was attempting to recover himself.

Cases 4 to 8 occurred in the practice of one of us at the Lambeth Hospital.

CASE 4 was that of a boy, aged 15, who, whilst running in a 100 yards race, felt a sudden pain in the outer side of the right foot, which, he was certain, was off the ground at the time. In spite of the pain he was able to finish the race. The accident happened in August. In the October following, whilst walking quietly about his business, he felt a sudden pain in his left foot. Radiographic examination showed that the tubercle on the left side had been torn off; the appearances of the fracture were identical on each side. Two years after the second fracture radiographs were taken for the purposes of this paper; and it appeared that there had been complete union in each metatarsal bone. A week or two after these latter radiographs had been taken, the boy, after running for a short distance, felt a sharp pain in his right foot. It was found that the tubercle on the right side had been broken off again.

CASE 5 was that of a warehouse porter, aged 28, who felt a sudden pain in his foot whilst in the act of lifting a heavy roll of cotton from the ground.

CASE 6, a woman hospital orderly, aged 40, slipped whilst going upstairs. She felt considerable pain in her right foot, and it was found that separation of the tubercle had occurred.

CASE 7, a nurse, aged 21, twisted her ankle in the ward. She did not experience any serious pain at the time; but radiographs showed the appearance of an avulsion fracture.

CASE 8 was that of a wardmaid, aged 21, who had suffered for some time from pain in her foot. There was no history of injury, and, until radiographic examination showed a separation of the tubercle of the left fifth metatarsal, the pain had been attributed to a giving way of the arch of the instep.

*Separation of the Tubercle with History of Possible Direct Violence.*

The three following cases were instances of separation of the tubercle with radiographic appearances exactly similar to those already described, but with a history of possible direct violence.

CASE 9 was that of a man, aged 65, who was knocked down by a taxicab. The patient did not think that the wheel went over his foot, but there was extensive ecchymosis. On radiographic examination a separation of the tubercle was evident.

CASE 10 was that of a workman who hurt his left arm and foot by falling off a motor lorry. There was swelling of the foot, with localised tenderness over the base of the fifth metatarsal and separation of the tubercle.

CASE 11, a man, aged 54, was knocked down by a motor lorry. His left foot was swollen and ecchymosed; but there was no abrasion of the skin, and it was not certain whether the separation of the tubercle, seen on radiographic examination, was caused by direct violence or not.

CASE 12 is one of multiple fracture of the foot by direct violence in a man aged 45, whose left foot had been run over by a motor lorry. There were multiple fractures of the foot, with dislocation of the second and third toes and chipping of the lower end of the tibia. This case is specially mentioned because radiographic examination showed that, along with other injuries, there had been a separation of the tubercle of the fifth metatarsal bone, with the radiographic appearances which are, we believe, characteristic of the avulsion fracture.

*Fractures of the Second Metatarsal Bone.*

The next case is of interest because separation of the tubercle of the fifth metatarsal was complicated by a fracture through the second metatarsal bone. The last two cases are quoted as instances of fracture through the shaft of the second metatarsal bone without an history of an injury of any kind.

CASE 13 was that of a woman, aged 50, who slipped off the step of a tramcar. She fell to the ground, breaking her left humerus, and at the same time felt a sharp pain in her left foot. On radiographic examination it was found that there had been a fracture through the shaft of the second metatarsal and a separation of the tubercle of the fifth metatarsal bone.

CASE 14, a young man, aged 18, was admitted into the hospital complaining of pain in his foot. There was no history of any sort of accident, but it was found that the shaft of the second metatarsal bone had been fractured.

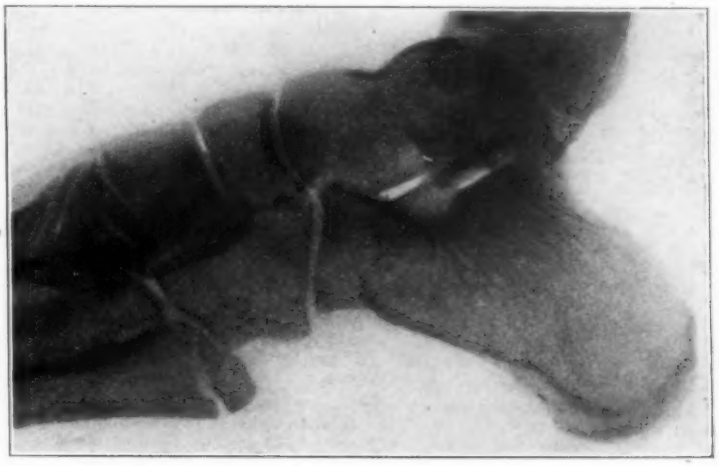
CASE 15, a nurse, aged 21, complained of pain in her left foot after she had been on duty for some little time. Again there was no history of an accident of any sort, and the injury to the foot was not suspected until radiographic examination showed a fracture through the shaft of the second metatarsal bone of each foot.

*General Considerations.*

When considering the cause of fracture of the tubercle of the fifth metatarsal bone it is impossible, having regard to Cases 1, 3, and 4, to avoid the conclusion that in some cases the tubercle may be torn from the rest of the bone by muscular action; the only muscle that could be concerned is the *peroneus brevis*. In Cases 2, 5, 6, and 7 there is either a history of, or a possibility of, a twist of the foot, whilst on the ground and supporting the whole body-weight. We find it difficult to imagine circumstances in which the weight of the body, thrown on the outer edge of the inverted foot, could be so applied as to cause a fracture of the tubercle only. Under such conditions the fifth metatarsal bone would break, as Jones demonstrated clearly, beyond the attachments of the plantar and dorsal ligaments, and not behind them. Therefore we think it possible that in these cases also the tubercle is broken off by a sharp contraction of the *peroneus brevis* in a sudden and incoördinated muscular effort to recover from a stumble or to avert a fall. When, by accident, the foot comes to the ground in a faulty, inverted position there is probably in most cases an automatic effort to correct the fault by associated action of the *peronei* muscles which evert the foot. In a regularly coördinated effort with this purpose the *peronei* act simultaneously, the shorter muscle pulling on the outer edge of the foot and the longer muscle on the inner edge. If the short, thick *peroneus brevis* should act a fraction of a second before the *peroneus longus*, the "steadying" effect of the combined action of the two muscles is lost, and the foot will be thrown outwards with a sudden jerk by the unaccustomed, independent action of the *peroneus brevis*.

Our series includes one case (9) in which it was probable that separation of the tubercle, without other injury to the bones of the foot, had been caused by direct violence, and another case (11) in which a similar fracture was associated with other injuries to the foot. In both these cases the radiographic appearances of the separated tubercle were identical with those seen in what we believe to be undoubted cases of avulsion fracture of the tubercle by muscular action.

FIG. 1.

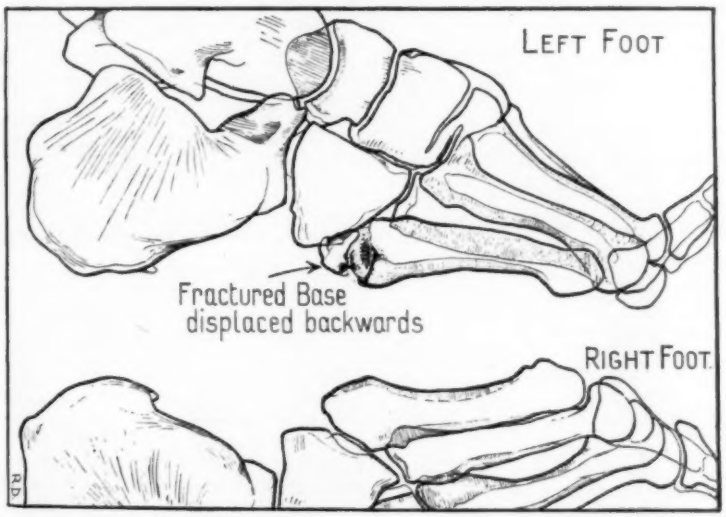


CASE 2.—Radiogram showing fracture of the tubercle of the left fifth metatarsal.

Two cases (12 and 14) of fracture through the shaft of the second metatarsal bone without any history of external violence are specially mentioned, because they, like some of the cases of avulsion fracture, suggest an exceptional liability of the metatarsal bones to fracture by apparently slight violence. This special liability of the components of the metatarsal arch to easy fracture makes it appear that the human foot has not yet become fully habituated to the erect position of the body. This is further suggested by the fact that recorded cases show that the left foot is distinctly more liable than the right to accidents of this nature. The left foot is certainly a little less developed than the right in specialisation of function adaptive to the needs of an acquired erect position. Man may be said to be right-footed, as generally he is right-handed. Therefore functional coördination of the muscles of the left foot is the more likely to fail; the left foot is more liable to stumble than the right; and its metatarsal arch is more likely to break under the body-weight than the arch of the right foot.

When considering the apparently slight amount of force which is sufficient, in some cases, to cause a separation of the tubercle of the fifth metatarsal bone, it is interesting to note also that the tubercle may develop as a separate bone. Normally, the metatarsal bones, excepting the first, develop from two centres of ossification—a primary centre for the

FIG. 2.




CASE 1.—Twelve months after fracture, showing separation of base of fifth metatarsal bone, with atrophy of the shaft of the bone. (Drawn from a radiogram.)

body of the shaft and for the tarsal extremity or base, and a secondary centre for the distal or phalangeal extremity. But, probably under reversionary influences, the tubercle of the fifth metatarsal may present itself as a separate bone, *os vesalianum* of Pfitzner. Testut [6] had seen only a single case of this, but quotes Grüber as having come across three instances; and Pfitzner met with only one instance of the separate *os vesalianum* after an anatomical examination of more than 1000 feet. Spronk, quoted by Poirier and Charpy,[7] found *os vesalianum* in a newly born infant which showed polydactylism of the hands and feet; each foot had seven toes, the two supernumerary toes being carried by the fourth and fifth metatarsal bones. The separate *os vesalianum* in this case articulated with the cuboid bone and with the base of the fifth metatarsal. A somewhat similar anatomical variation may occur behind the bases of the first and second metatarsal bones, in the form of *ossa intermetatarsa*. The second metatarsal bone appears to be especially liable to what must be called spontaneous fracture, when the fracture occurs without any history of violence. But as the fracture in this case occurs through the thinner part of the shaft of the bone, the possibility of the existence of a separate *os intermetatarsum* is of interest only in connexion with radiographic diagnosis.

The tubercle of the fifth metatarsal being developed from what was originally one of the tarsal bones, it is interesting to note that another of the 11 true ossicles of the tarsus (*os trigonum*) recognised by Pfitzner,[8] in cases in which it has coalesced with the rest of the astragalus, is liable to separation. *Os trigonum*, when attached, is represented by the lateral tubercle on the groove in which *flexor longus hallucis* runs at the back of the astragalus, but occurs as a separate ossicle far more frequently than does *os vesalianum*. Pfitzner estimates that it remains uncoalesced in about 7 per cent. or 8 per cent. of cases. Major Brooke Churchill, R.A.M.C., has recently published [9] radiograms showing the separate bone, and also the appearances in fracture.

There is little to be said about the treatment of avulsion fracture of the tubercle of the fifth metatarsal bone. All the cases, except No. 1, were satisfactorily treated by resting the foot until union had been effected. In Case 1 the fracture was not treated at all, and somewhat prolonged disability was the result. Considering the tendency of the tubercle to be tilted backwards by the attached peroneal muscle, it is obvious that in walking the weight of the body will tend to widen the separation between the tubercle and the rest of the bone, with delayed union as a result—as happened in this case.

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NORFOLK AND NORWICH HOSPITAL.—Sir Kingsley Wood, Parliamentary Secretary to the Ministry of Health, recently opened an extension of this institution, which has been provided by public subscription as a memorial to the men of Norfolk and Norwich who fell in the war. The new building includes a large waiting-room, five consulting and attached examination rooms, rooms for the treatment of ear, nose and throat cases, an operating block, a recovery room for minor operations, and a casualty room.

# DUODENAL ULCER IN THE FEMALE.

## THE CHOLECYSTODUODENAL SYNDROME.

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WHEN we compare statistical tables of the diseases treated in our large hospitals to-day with those of 20 years ago, perhaps the most striking single difference in the present day is the frequency of duodenal ulcer. In the Royal Infirmary, Edinburgh, in 1906, 24 cases of duodenal ulcer were treated, 18 by medical and 6 by surgical measures. During the same year 22 cases of perforated duodenal ulcer were dealt with in the hospital. During 1926, on the other hand, 236 cases were treated, 73 in the medical and 163 in the surgical wards. Does this difference mean that there has been an actual increase in the incidence of ulcer, or does it merely indicate that diagnosis has improved? It is notorious that we only see what we look for; hence, in part, the great disparity in the recorded incidence of different diseases in the practice of different observers in different districts or, it may be, even in the same district. In view of the number of ulcer cases treated by operation in 1926, the number of cases of perforated ulcer would be expected to show a perceptible decrease if the incidence of the disease had not varied. On the contrary, we find that in 1926 the hospital admitted 102 cases of perforated duodenal ulcer, more than four times the number of 20 years ago, and this despite the fact that, in the small provincial hospitals within the area served by the Royal Infirmary, operations for perforated duodenal ulcer are now quite common. (Table I.)

TABLE I.—*Incidence of Duodenal Ulcer in the Royal Infirmary, Edinburgh.*

| 1906. | | | | | 1926. | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Unperforated ulcer. | | Perforated ulcer. | | Total. | Unperforated ulcer. | | Perforated ulcer. | | Total. |
| M. | F. | M. | F. | | M. | F. | M. | F. | |
| 21 | 3 | 17 | 5 | 46 | 200 | 36 | 99 | 3 | 338 |

M. = male. F. = female.

The only inference to be drawn from these figures is that duodenal ulcer has actually increased in frequency during the past 20 years.

There is apparently a fairly widespread opinion in this country that duodenal ulcer is rare in the female. Experienced surgeons have told me that they could not recall more than one or two cases in many years of surgical practice. In my experience, duodenal ulcer is much commoner than gastric ulcer in both sexes, so that I venture to record my observations,

TABLE II.—*Incidence of Ulcer Operated on 1921 to 1927.*

| — | Duodenal ulcer alone. | Gastric ulcer alone. | Coincident gastric and duodenal ulcer. |
|---|---|---|---|
| Males .. .. | 234 | 22 | 33 |
| Females .. .. | 76 | 30 | 18 |
| Total .. .. | 310 | 52 | 51 |

and with them a statement of what I believe to be a frequent cause of failure to diagnose this disease in the female. Data are now available which point very clearly to the ulceration being infective and, indeed, streptococcal in origin, and it is not unreasonable to suppose that a streptococcus with a special acquired affinity for the duodenal wall is prevalent, and accounts for the increasing frequency of the condition.

*Incidence of Ulcer.*

An analysis of ulcer cases operated on by me during the past six years shows that, out of a total of 413 cases, there were 94 cases of duodenal ulcer in the female. In 18 of the latter there was a coincident gastric ulcer. (Table II.)

Duodenal ulcer occurs in the female, as in the male, at all ages. My youngest patient was a girl of 16, whilst three patients were 70 or over. The average age at the time of operation was 45. It occurs both in the thin asthenic type of female and, perhaps even more often, in the stout, well-favoured type. It occurs with almost equal frequency in hospital and private practice (51 in hospital, 43 in private practice). There would appear to be an undoubted hereditary tendency to ulcer, particularly in females. I have had to deal with two families in each of which three sisters have been operated on for duodenal ulcer. More than 80 per cent. of the patients were non-smokers.

FIG. 1.

Radiogram of gall-bladder 12 hours after injection of 3 g. of dye in case presenting cholecystoduodenal syndrome.

*Symptomatology.*

In many cases a typical history was given: periodic attacks of indigestion with hunger-pain, relief from food, long periods of freedom from symptoms in the early stage, and more constant trouble as time went on, but in quite a large proportion (35 per cent.) the history was not classical. Flatulence was often the chief complaint; associated with this were attacks of acute pain, apparently without any definite relation to food, occasionally associated with vomiting and sometimes followed by a faint tinge of yellow in the skin. At such times the patient complained of much acidity and heartburn. On at least ten occasions I have operated on a diagnosis of cholecystitis, only to find a normal gall-bladder and a typical duodenal ulcer.

FIG. 2.

Same case as in Fig. 1 two hours after fatty meal and immediately after barium meal. Gall-bladder partly emptied and pronounced deformity of duodenal cap.

Gradually we have come to recognise a clinical picture which I have termed the *cholecystoduodenal syndrome*. The patient is usually somewhat stout, complains of "wind" and attacks of pain in the epigastric region to the right of the midline. She is uncertain of the relation of the pain to the taking of food, but has usually lived for some time on a restricted diet, avoiding potatoes and all "heavy" articles of diet. She describes attacks of pain lasting for a few hours, very suggestive of biliary colic. On careful questioning, however, these attacks are found to be less severe than true colic. When questioned as to jaundice, she will state that friends have remarked on a yellowish tint in her skin at these times (duodenitis with catarrh). Leading questions will elicit that at some time or other, and almost always on more than one occasion, she has had an attack of indigestion, lasting for a few weeks, of almost typical duodenal type.

Whether it be that the average female is less observant, or is merely more tolerant of a recurrent pain than the male, or whether the pylorus in the female does not react so readily by recurring spasm to duodenal irritation, is uncertain. It is undoubtedly true, however, that a somewhat vague and indefinite history of flatulence and

FIG. 3.

Faint gall-bladder shadow and deformity of duodenal cap. Early cholecystitis and duodenal ulcer.

irregular pain is the common story in the female. The most probable explanation of the absence of the typical hunger-pain in the female is the prevalence of the habit, among those engaged in household duties, of taking food between regular meal-times and thus of anticipating the onset of hunger-pain. The male, with fixed hours for work, has longer fasts and less opportunity of warding off the hunger-pain. Whatever the cause, it is a fact of experience that in many cases of duodenal ulcer in the female the classical history is not volunteered, and can only be elicited with difficulty, and then imperfectly. In the majority of my cases the patients had suffered from dyspeptic symptoms for many years and, whilst a tentative diagnosis of cholecystitis had frequently been made, their pseudocolic attacks had never been considered sufficiently severe or disabling to warrant surgical interference.

### *Accurate Diagnosis by Cholecystography.*

During the past year I have had to deal with five cases, admitted to hospital with a provisional diagnosis of cholecystitis and gall-stones, in which preliminary investigation by cholecystography has led to a positive diagnosis of duodenal ulcer and normal gall-bladder. The patients have all been females, and the histories in all were certainly more suggestive of gall-bladder than of duodenal mischief.

The technique which we now follow, at the suggestion of Dr. Woodburn Morison, is important. On the night of admission the patient is given a dose of liquorice powder. The following day a preliminary X ray photograph is taken. That evening at 9 o'clock an intravenous injection of 3 g. of sodium tetraiodophenolphthalein is given in 40 c.cm. of distilled water. At 9 o'clock the following morning an X ray (with Bucky diaphragm) is taken. The patient is then given a barium meal, and the stomach and duodenum observed on the screen and a second photograph taken. At 1 P.M. a fatty meal is given, and at 3 P.M. the final X ray is taken.

In the five cases referred to the gall-bladder gave a normal cholecystogram, and the barium meal in each instance showed an unmistakable deformity of the duodenal cap. (Figs. 1 and 2.) At operation, one or more duodenal ulcers were found in each case, and the gall-bladder was normal. In a sixth case the cholecystogram showed a shrunken gall-bladder with stones, as had been expected, but in addition a duodenal ulcer. At operation both conditions were dealt with successfully.

I have no hesitation in stating that in

FIG. 4.

Same case as in Fig. 3. Stomach allowed to fall over to left, demonstrating duodenal ulcer with stenosis.

the combined cholecystography and barium meal test described above we have a most valuable diagnostic aid in female patients presenting the cholecystoduodenal syndrome.

*Operative Treatment.*

I have found that some form of conservative short-circuiting operation has been uniformly successful. There does not appear to be the same tendency to peptic ulcer of the jejunum in the female as in the male. The relatively mobile duodenum in the female makes a gastro-duodenostomy (Eiselsberg) an easy and safe operation, and I have latterly preferred this or a Finney's operation to gastro-jejunostomy as being more physiological. In the 76 cases in which no gastric ulcer was present, posterior gastro-enterostomy was performed in 47 cases, gastro-duodenostomy in 20, Finney's operation in 4, and excision with pyloroplasty in 5 cases.

When a coincident gastric ulcer is present, as it was in 18 out of the 94 cases here recorded, the treatment must vary according to the local condition and the age of the patient. When a chronic penetrating gastric ulcer was present, excision of the ulcer followed by gastro-enterostomy was the operation of choice. For small active gastric ulcer, high on the lesser curvature, the cautery was used. In six of my patients, all elderly, an hour-glass contraction of the stomach, due to an old and practically healed gastric ulcer, was present; a gastro-gastrostomy followed by gastro-enterostomy in the lower sac (five cases), or a double gastro-enterostomy and a lateral anastomosis between the limbs of the jejunal loop (one case) gave completely satisfactory results. In nine cases cholecystitis with gall-stones was found, associated with the duodenal ulcer. (Figs. 3 and 4.) In six of these cholecystectomy, in two a cholecystostomy, and in one a cholecystectomy and a choledochostomy were performed. The appendix was diseased and was removed in approximately one-third of the cases. In one case, besides the duodenal ulcer, an active gastric ulcer, a subacute cholecystitis, and a proliferative chronic appendicitis were present. The gall-bladder, appendix, and gastric ulcer were excised, and a gastro-duodenostomy performed.

I have yet to be convinced of the necessity for extensive resection for simple ulcer of either stomach or duodenum or both.

*Summary.*

1. Duodenal ulcer appears to be a much commoner disease now than it was 20 years ago. 2. Duodenal ulcer is a common disease in the female, more so than gastric ulcer. 3. The typical history is much less frequently given than in the male, hunger-pain often being absent. 4. The "catch meals" of the housewife are probably responsible for the indefinite picture. 5. Under the term cholecystoduodenal syndrome a clinical picture, often confused with that of cholecystitis, is described. 6. Operative treatment on conservative lines is recommended.

## ALKALI TREATMENT IN DIPHTHERIA AND SCARLET FEVER.

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THE present writer [1] showed, in 1918, that an acidosis (a reduced alkali reserve), associated with ketonuria, occurred in the more toxic cases of diphtheria, and that the administration of alkalies tended to prevent the pernicious vomiting and circulatory failure which may occur in the second week of the disease. Since then the routine treatment of all cases of diphtheria in this hospital has included the administration of 30 g. sodium bicarbonate, 5 g. potassium bicarbonate, and 7 g. calcium carbonate in four-hourly doses, until the morning urine is alkaline to litmus, which takes three or four days. For younger children the dose is halved. My colleague, F. J. Hector,[2] has confirmed these observations and shows that the reduced alkaline reserve is associated with some defect in carbohydrate metabolism.

In a report on wound shock,[3] it was very clearly demonstrated that experimentally produced "acidosis" will not in itself cause any appreciable symptoms, even when the alkali reserve is reduced to what is probably a lower level than would ever occur naturally. The original explanation of the undoubted benefit derived from these measures is therefore untenable. Richet [4] and others have shown that anaphylactic shock may be prevented by administering saline with the second dose of serum. Moore [5] considered that in a severe toxic state, such as cholera, the crystalloid-colloid balance is upset, and that "electrolytes are wanted to combine with circulating toxic colloids and tissue colloids and to prevent these linking on to each other." Crystalloids are also necessary to tug the toxic colloid through the excreting channels. This is probably the explanation of the advantage of drenching the patient with basic salts. It is important, therefore, to give large doses of these salts in the early stage of disease, to prevent fixation of the toxin to the tissues until the antitoxin has had time to do its work. It is also vitally important to discontinue their administration when the acute stage is over, as an alkalosis may produce an anoxæmia [6] or may damage an already partly poisoned heart.[7] It is interesting to note the craving of febrile children for fruit and their complete distaste for other foods. This may be an instinctive attempt to make up a deficient alkali reserve.

In this communication I attempt to assess the clinical value of these measures from a study of records extending over 18 years. Although we have careful records of 10,000 cases treated with and without alkalis, it is impossible to bring forward incontrovertible statistics because a new and immeasurable factor was introduced—viz., the outbreak in 1920 of a much more severe type of disease which is only now reverting to the former type after a widespread and virulent epidemic. This type was characterised by great swelling of the throat and neck, appearing within 24 hours of onset; by delayed formation of membrane, causing great difficulty in diagnosis, and in many cases by the death of the patient from overwhelming toxæmia within three days. During this time 20 per cent. of the nursing staff were very severely attacked, one nurse dying on the fourth day, although 40,000 units of antitoxin were administered within six hours of the onset of symptoms. This was before Schick methods were used. The death-rate, therefore, is no guide. In fact, the alkali-treated group show a death-rate of 6·4 per cent., compared to 5·6 per cent. for the other group.

I have therefore attempted to arrive at some conclusion by comparing those in each group who showed the cardiac vomiting syndrome.

*The Cardiac Vomiting Syndrome.*

Between 1903 and 1917 4894 cases of diphtheria were treated in this hospital without alkalis; 148 cases (3 per cent.) showed the cardiac vomiting syndrome. Of these, 102 died (one survived a month, only to die of diaphragm paralysis), 46 recovered—i.e., more than two-thirds died, or 2·1 per cent. of the whole group untreated by alkalis.

In the second group, from 1918 to 1927, 5880 cases were treated by alkalis. Of these, 65, or 1·1 per cent., died with cardiac vomiting symptoms (i.e., half the former number), 148 showed some vomiting with heart weakness, but eventually recovered, while ten of the vomiting cases recovered from the vomiting stage only to expire of diaphragm paralysis. This increase of paralytic cases was also noted after the introduction of antitoxin, and the explanation is probably similar—i.e., that a large proportion of the severe cases lived long enough to develop these symptoms. Therefore, although we are dealing with a much more severe type of disease, with a higher

percentage of vomiting cases (3·8), more than two-thirds eventually recovered, as against one-third in the former group. If the same type of disease had persisted throughout, the figures would have been much more favourable to the alkali-treated group, as in 1918–20 (before the type of disease changed) only six fatal vomiting cases occurred among 1237 patients (0·5 per cent.)—i.e., a quarter of our former steady percentage (2·1).

There is also a striking clinical difference in the two groups. Without alkalis the vomiting is very frequent, is quite uncontrollable in two-thirds of the cases, and ends with bilious and finally with "coffee-ground" material. If vomiting starts in the alkali-treated cases, it is not nearly so frequent or distressing, the vomit never assumes the coffee-ground appearance, and less than one-third die.

*Scarlet Fever.*

In recent publications by Osman [8] and Berry [9] it is stated that alkali treatment in scarlet fever prevents nephritis and possibly rheumatism and endocarditis. These observations were anticipated by my former colleague, R. Thomas,[10] in 1919, working in this hospital. He stated that "acidosis aids in determining the onset of this complication (i.e., nephritis), and that early administration of soda may reduce its incidence." Since 1918 alkalis have been administered in scarlet fever in the same doses as for diphtheria during the acute stage only, usually for about a week, as Thomas showed that an acidosis with ketonuria was then present.

The experience of this hospital, extending over 17 years, is given in the two succeeding tables.

TABLE I.—*Cases of Scarlet Fever Treated Without Alkalis.*

| Year. | No. of cases. | Nephritis. | Arthritis. | Endo-carditis. |
|---|---|---|---|---|
| 1910 .. | 582 | 10 | — | 3 |
| 1911 .. | 497 | 19 | 17 | 8 |
| 1912 .. | 338 | 11 | 10 | 3 |
| 1913 .. | 408 | 3 | 6 | 2 |
| 1914 .. | 946 | 10 | 26 | 6 |
| 1915 .. | 441 | 8 | 16 | 5 |
| 1916 .. | 343 | 8 | 9 | 2 |
| 1917 .. | 93 | 2 | 5 | 1 |
| Totals | 3648 | 71 | 89 | 30 |
| Percentage attack rate of complications .. | | 1·7 | 2·4 | 0·82 |

TABLE II.—*Cases of Scarlet Fever Treated With Alkalis.*

| Year. | No. of cases. | Nephritis. | Arthritis. | Endo-carditis. |
|---|---|---|---|---|
| 1918 .. | 203 | 6 | 0 | 2 |
| 1919 .. | 249 | 1 | 1 | 1 |
| 1920 .. | 635 | 7 | 4 | 2 |
| 1921 .. | 400 | 3 | 4 | 3 |
| 1922 .. | 607 | 11 | 5 | 3 |
| 1923 .. | 641 | 37 | 5 | 11 |
| 1924 .. | 213 | 3 | 3 | 3 |
| 1925 .. | 417 | 6 | 9 | 0 |
| 1926 .. | 505 | 10 | 43 | 2 |
| 1927 .. (9 months) | 420 | 2 | 20 | 6 |
| Totals | 4290 | 86 | 94 | 33 |
| Percentage attack rate of complications .. | | 2·0 | 2·2 | 0·77 |

It will be seen that our experience does not bear out Osman's contention, as there is no significant difference in the onset of complications in the two groups. It will also be seen that different structures appear to be singled out for an attack in different years, so that unless observation is extended over a long period, as well as over a large number of cases, very erroneous conclusions may be drawn. Osman continues the administration of large doses of alkalis throughout convalescence. There is no evidence of any shortage of alkalis in the tissues at this stage, especially if, as in this hospital, the patient is given a vegetarian diet, rich in bases, during the first three weeks of the illness. We only give alkalis where we have found definite evidence of a shortage of the alkali reserve—i.e., during the acute stage.

He notes four cases of nephritis in his series of 600 cases, one ending in death. In our first group (treated without alkalis) two fatal cases of nephritis occurred out of 3648 cases. In the second group, treated with alkalis, there was no fatal case of nephritis.

It is well to remember the warning in the Medical Research Committee's Report [3]: "An abnormally high alkali reserve can be as rationally considered undesirable as can a low one; possibly more so, since the only method by which the normal level can be rapidly restored is by depression of tissue oxidation, which may give rise to other and more harmful products than fixed acids."

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# THE RÔLE OF CARBON DIOXIDE

## IN THE GROWTH OF NORMAL AND TUMOUR CELLS.

BY J. C. MOTTRAM, M.B. LOND., M.R.C.S. ENG.,
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THE similarity between the behaviour of normal cells cultured in vitro and of cancer cells growing in the body has not been sufficiently stressed. For instance, kidney cells from an adult rat, when cultured in vitro, exhibit three important cancerous characters: (1) they migrate out into the medium; (2) they exhibit de-differentiation; (3) they undergo abundant mitotic cell division. Results obtained with in vitro cultures [1] suggested that in normal tissues these tendencies of normal cells were held in check by inhibitory factors, and that in the repair following injury inhibition was temporarily lost, whilst in cancer the loss was sustained. Thus cancer would be due to a change in the cell's environment, in which an inhibitory factor is destroyed, rather than one in which a stimulating factor is added. It is important, therefore, to discover what are the environmental factors common to cells undergoing cancerous change in the body and cells growing in vitro which show cancer-like behaviour.

Researches have shown that in the body the cells' environment is remarkably constant, so that it has been said that the chief function of the body is to ensure a constant environment for its cells, to protect them from the wide environmental variations to which the animal as a whole is exposed. This constancy is largely controlled by the circulation of the blood, which regulates the temperature, the supply of food and oxygen, the carrying-away of waste products and carbon dioxide, the hydrogen-ion concentration, &c. The question then arises whether a change in blood-supply is the common ætiological factor present in all the various pre-cancerous conditions, such as those which follow chronic irritation, radiation, tarring, &c. The numerous pre-cancerous conditions occurring in man, or as the result of experiments in animals, have been described in detail, and form a vast literature, in which there is much evidence of a decreased blood-supply. Such descriptions as "obliterating inflammation of the blood-vessels," "perivascular sclerosis," "localised arterio-sclerosis," "hyperplasia of the endothelial cells of the capillaries after X rays and radium" frequently recur. If, therefore, an altered blood-supply is a common ætiological factor, it would be a diminished and not an increased supply. A diminished

blood-supply leads to an interference with the gaseous tensions of the cells' environment which the body is at pains to regulate precisely. The following experiments have, therefore, been made to discover how normal cells behave when grown in vitro under various gaseous tensions.

### *Experimental Details.*

Exposures of in vitro cultures to various gases were made in McIntosh-Fildes anaerobic jars. For the cultures, hollow-ground slides were used, having grooves cut on either side so as to provide free communication with the outside after the cover-glass had been sealed on with paraffin wax. The cultures were placed in Petri dishes, on blotting paper moistened with Locke's solution. The gases used were nitrogen, oxygen, and carbon dioxide obtained from cylinders, and hydrogen from a Kipp's apparatus. The anaerobic jar was connected with a mercury manometer to measure the gaseous pressures, which were controlled by an air pump.

Rat kidney cells, rat fibroblasts, and Jensen's rat sarcoma cells were used for culturing. Migration of the cells into the culture medium (chicken plasma or serum) was used as the measure of vital activity.

### *Experiments with Oxygen.*

No extrusion of cells was observed in the complete absence of oxygen.

This was obtained either by combining the oxygen with hydrogen in the usual way, so that finally the jar was filled with a mixture of nitrogen and hydrogen; or by first half-filling the jar with carbon dioxide and then washing out the carbon dioxide with nitrogen, until the gas coming away gave no precipitate on passing through barium hydrate. Before incubation, and in all the experiments with oxygen, 100 mm. of carbon dioxide were added to the contents of the jar, so as to lower the pH value of the plasma. Concentrations of oxygen below that of the air were obtained by exhausting the jar to a suitable level and filling with nitrogen.

Table I. gives the results obtained.

TABLE I.

| Oxygen pressures in mm. | Kidney cells. | Fibroblasts. | Sarcoma cells. |
|---|---|---|---|
| 0 | − | − | − |
| 20 | − | − | + V.sl. |
| 40 | − | − | + Sl. |
| 80 | + | + | + |
| 150 | + | + | + |
| 600 | + | + | + |

−, No extrusion of cells. +, Extrusion of cells.
V.sl., Very slight. Sl., Slight.

There is no difference between the behaviour of kidney cells and that of fibroblasts. In contrast, sarcoma cells exhibit evidence of activity in much lower concentrations of oxygen, though their activity is reduced at low tensions and absent under complete anaerobiosis. Those cells not showing activity under anaerobiosis or low oxygen tensions were not dead, for if favourable gaseous conditions were subsequently applied, extrusion of cells took place, confirming Okamoto's findings.[3]

### *Experiments with Carbon Dioxide.*

Mixtures of carbon dioxide were obtained by exhausting the jar and then filling up with carbon dioxide. Experiments showed that the act of exhausting the jar, even to a few mm., does not prevent the cells from subsequently migrating out into the medium in a normal manner. Table II. gives the results.

TABLE II.

| $CO_2$ pressure in mm. | Kidney cells. | Fibroblasts. | Sarcoma cells. |
|---|---|---|---|
| 0 | + Sl. | + | + |
| 10 | + | + | + |
| 100 | + | + | + |
| 200 | + | + | + |
| 250 | + Sl. | + | + |
| 300 | − | + | + |
| 400 | − | − | − |
| 600 | − | − | − |

Extrusion, therefore, can occur at carbon dioxide tensions far above the 40 mm. naturally found in the tissues. There is no difference in behaviour between fibroblasts and sarcoma cells, but kidney cells do not migrate so readily at the higher and lower concentrations. The absence of migration at 400 and 600 mm. is not due to an absence of oxygen.

### *pH Values.*

Side by side with these experiments, measurements of the pH values of serum in equilibrium with varying tensions of carbon dioxide were made in Prof. E. C. Dodds's laboratories at the Middlesex Hospital by Mr. N. F. Maclagan, to both of whom I am indebted for the following results. Glass electrodes were used, as described by Kerridge.[3] Tubes of serum were left overnight at 35° C. in the jars filled with the mixtures of gases. Tubes of liquid paraffin were also placed in the jars. When the jars were opened the paraffin was at once poured on the serum and the tube tightly corked. The serum was subsequently manipulated under liquid paraffin to prevent the escape of carbon dioxide.

| Gas. | pH. |
|---|---|
| Air .. .. .. .. .. .. | 8·49 |
| 50 mm. $CO_2$ + Air .. .. .. .. | 7·25 |
| 100 " " + " .. .. .. .. | 6·97 |
| 200 " " + " .. .. .. .. | 6·72 |
| 300 " " + " .. .. .. .. | 6·60 |
| 400 " " + " .. .. .. .. | 6·49 |
| 500 " " + " .. .. .. .. | 6·28 |
| 600 " " + " .. .. .. .. | 6·25 |
| 100 " " + $N_2$ + $H_2$ .. .. .. | 6·94 |
| 100 " " + 545 mm. $O_2$ + Air .. | 6·99 |

It is seen that the tolerance of these cells towards oxygen and carbon dioxide is very different. In the case of carbon dioxide there is an upper limit, whereas for oxygen there is a lower limit. For carbon dioxide there is a tension for optimum cell activity, as this is depressed at low tensions as well as at high. Since variations in blood-supply, by altering the carbon dioxide tension on either side of this optimum, could thus control cell activity, the question arises whether there is any evidence for such control.

Those who take a wide biological view will admit that an acid environment due to carbon dioxide is often an important factor in the manifestation of growth. Loeb[4] has shown that the segmentation of unfertilised ova can be started by subjecting them to a number of chemical agents, of which carbon dioxide and the mono-basic fatty acids are especially effective. It is known that carbon dioxide penetrates living cells more easily than all other substances, not excluding water, and that the permeability of cells so penetrated is greatly altered, so that oxidation is increased and the metabolic rate raised. Carbon dioxide has also a controlling influence in the action of many enzymes, chiefly through alteration of pH values. In plants growth, the building of carbohydrates and many other vital processes vary with the hydrogen-ion concentration in the tissues produced by varying accumulations of carbon dioxide.

Pearstall and Priestley[5] have shown that in plants the cambium layer lies across a steep gradient of pH 3·0 to 6·5, and conclude that growing cells are situate when the pH value is that of the iso-electric points of the principal plant proteins, which is about 4·4. Pauli[6] gives the iso-electric points for a number of animal proteins: albumin, 4·7; casein, 4·6; hæmoglobin, 6·75; and serum globulin, 2·66. It is to be noted that these are all on the acid side. The iso-electric points of the proteins of living cells are not known, so we are thus unable to predict the pH value most favourable to growth in the case of animal cells. Much recent research has been done on the pH value of the interior of living cells.[7] This appears to be remarkably constant in the neighbourhood of pH 5 to 6·5, and hydrogen-ions in the cell's environment are much more effective in altering this than are OH ions. During mitosis, wide excursions of pH value occur.[7] It is also to be noted that the rapid growth of cells seen in tumours and in embryos is associated with a low pH value due to the presence

of lactic acid as well as carbon dioxide.[8 9] The metabolic gradients observed by Child,[10] which he has shown to be intimately concerned with dominance in growth and regeneration, must also condition a carbon dioxide gradient.

Lastly, not only do we find evidence of the origin of carcinoma in situations of diminished blood-supply, but its spread through the body, such as lymphatic permeation, and growth in lymphatic glands, spleen, liver, and bone-marrow, suggests that situations distant from the circulation are favoured. Tumours have not been produced in animals by direct treatment with acids, but Smith[11] has shown that the plant tumours produced by bacteria are reactions to the local production of increased acidity. He has produced tumours by acetic acid and by agents which cause local semi-asphyxiation. It would seem, therefore, that there is evidence that an environment of high carbon dioxide tension encourages cells to anabolise, de-differentiate, and grow, whilst an abundance of oxygen and an absence of carbon dioxide has a reverse effect.

Warburg[12] likewise postulates a chronic anoxæmia as an ætiological factor in cancer, but from a different standpoint. He lays stress on a deficient oxygen supply. He has shown that tumour cells differ from normal cells in that they hydrolise glucose to lactic acid, both in the presence and in the absence of oxygen, much more actively than normal cells, and thus obtain energy for growth under anaerobic conditions.

In our experiments no evidence of cellular activity was obtained in the complete absence of oxygen, even when glucose was added. On the other hand, Wind[13] obtained growth under anaerobic conditions, using Rous sarcoma; if, however, the medium was made glucose-free by dialysis, growth did not occur. Nevertheless, our experiments support Warburg's findings, in that Jensen's rat sarcoma presents activity at much lower tensions of oxygen than do normal cells.

No matter whether increased carbon dioxide tension or diminished oxygen tension or both play a part in the ætiology of cancer, it is evident that a diminished blood-supply must result in both, and the part played by carbon dioxide may be very important.

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# Clinical and Laboratory Notes.

## A NOTE ON THE INDUCTION OF LABOUR IN PELVIC DEFORMITY AND MATERNAL ILLNESS AND ON THE TREATMENT OF ANTEPARTUM HÆMORRHAGE.


BY ETHEL M. TOWNEND, M.D. LOND.,
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Dr. Henry Jellett in a recent article deprecates the too frequent use of Cæsarean section in the less severe forms of obstetric abnormality.

At the Hull Municipal Maternity Hospital all the patients are kept under observation during pregnancy and malformations corrected by external manipulation where possible. In some cases it is found that even with abdominal pressure the head will just not enter the brim at about the thirty-seventh week. These cases of slight flattening form, according to Whitridge Williams, 95 per cent. of all contracted pelves, and they will not permit a full-term head to pass. Induction of labour is, in my opinion, the best treatment for this class, and also for cases where the mother suffers from albuminuria or decompensation.

Much criticism has been advanced against induction on the ground that a premature child is difficult to rear, but it will be seen from the statistics given below that, where disproportion is the only abnormality, the mother healthy, and the presentation normal, over 90 per cent. of the infants are still alive and well, their ages ranging from three months to four years. Moreover, 100 per cent. of the mothers were discharged alive and with a sound uterus and abdominal wall. Adverse critics also maintain that, if left to nature, some of the cases would perhaps succeed in delivering themselves in spite of apparent disproportion. Even if this be so, it is surely better to err by inducing labour a little prematurely while the risk to mother and infant is almost nil than to leave her to face a protracted labour, which may require Cæsarean section in the end. Even if delivery can be effected by forceps the injury to the mother's genital tract and the fœtal skull are often considerable, especially when the arrest is at the brim.

Induction has been found very useful in severe cardiac decompensation, where the elimination of prolonged labour, shock, and anæsthesia is particularly important.

*The Method of Induction.*

Bougies were used in the earlier cases, the average time required between introduction and delivery being five days. I next used Prof. C. G. Lowry's toy balloon, the average time then being two and a half days. Jacques's œsophageal bougie is now used, and reduces the time to 18 hours. Another advantage of this method is that no ladder is left in the vagina up which infection may pass into the uterus. No pituitrin has been used, because its effect in any individual case cannot be foretold. The detailed treatment of these cases is as follows:—

Where time permits, castor oil, quinine, and hot douches are given on alternate days for three days, as advised by Dr. T. W. Eden. In some cases this alone is sufficient to make the head engage. Moulding will then take place, and the case is left without further treatment. No quinine is given if the mother is suffering from heart disease. If the head remains above the brim a hypodermic injection of Burroughs, Wellcome and Co.'s tabloid hypod. hyoscine co. B. is given, and half an hour later the vagina swabbed out and an iodine douche given. A little open ether is sometimes required in primiparæ, but not often. The boiled Jaques's œsophageal bougie is now held in the left gloved hand, and the patient placed in the lithotomy position. The end of the tube is guided into the external os by two fingers of the right hand placed in the vagina. After the use of quinine the os is always patent enough to allow the tube to pass. No vulcellum forceps are required or desirable. By gentle pressure the tube glides into the uterus, care being taken that the last portion passes through the internal os. The delivery is now left to nature, and the tube does not cause any pain or discomfort. It is, of course, essential that as much care be exercised to ensure asepsis as would be taken if the abdomen were to be opened. No case of pyrexia occurred in the series.

*Total Deliveries from January, 1924, to August, 1927=1893.*

| | | | |
|---|---|---|---|
| 1. For disproportion only— | | | |
| Mothers—all living. | | | |
| Infants living | .. .. .. .. .. | 42 | 46 |
| Died during first year (2 were illegitimate) | .. | 4 | |
| 2. For maternal illness or malpresentation— | | | |
| Mothers—all discharged alive. | | | |
| Infants—Living | .. .. .. .. | 6 | 21 |
| Dead | .. .. .. .. .. | 12 | |
| Cannot trace | .. .. .. .. | 3 | |
| Total inductions | .. .. .. .. .. .. | | 67 |

*Antepartum Hæmorrhage.*

I have had 68 cases of antepartum hæmorrhage in 3400 deliveries. Internal version was performed

57 times with three maternal deaths; two of the fatal cases were pulseless when admitted; 20 of the infants were born alive. In two cases in which I failed to turn the fœtus I found after delivery (by forceps) that it was in a state of rigor mortis, the limbs were quite stiff, and the mouth could not be opened. I should be interested to know if this condition has been frequently observed. Both mothers were in a satisfactory condition.

I wish to thank Dr. W. Allen Daley, the medical officer of health, for permission to publish these notes, and Dr. Susan H. Gilchrist, assistant medical officer for maternity and child welfare, for obtaining the after-histories of the infants.

## A NOTE ON THE LESS COMMON CAUSES OF OBSTRUCTIVE JAUNDICE.

BY A. RENDLE SHORT, M.D., B.SC. LOND., F.R.C.S. ENG.,

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SINCE the van den Bergh test and cholecystography provided a means of clinical distinction between chronic jaundice due to obstruction of the bile passages and jaundice due to other causes, it has become clear that a group of cases exists in which there is obstruction of the bile passages without either gall-stones, malignant new growth, or cirrhosis of the head of the pancreas. Patients belonging to this group are usually young women, and the jaundice is persistent, but pain is not conspicuous. Three examples of this clinical syndrome have recently come under my care; all were verified by operation, and the cause was found and removed, the jaundice disappearing in each case. Two had enlarged lymphatic glands pressing on the common bile-duct; these were tuberculous in one case and simple inflammatory in the other. The third showed a condition which may be called vateritis.

### *Case Reports.*

CASE 1. *Obstructive jaundice due to tuberculous lymphatic glands.*—Female aged 25. History of jaundice for three months, running an up-and-down course, the stools sometimes clay-coloured and sometimes showing a little bile, the urine usually bile-stained, but occasionally nearly clear. A certain amount of colic, like mild attacks of biliary colic, but not conspicuous. Diarrhœa at first, and occasional vomiting. Had had part of clavicle removed for tubercle. Liver and spleen both palpable and enlarged. Gall-bladder not felt.

Operation showed a small deeply situated gall-bladder, and large tuberculous glands in a chain running alongside and pressing on the common bile-duct. Glands removed; bile-duct drained. Closed in a week.

The jaundice cleared up. The patient died two years later, after a long illness, of which no details are available, but without jaundice, probably abdominal tuberculosis.

CASE 2. *Obstructive jaundice due to inflammation of lymphatic glands.*—Female aged 27. History of jaundice for four months, with a week almost free in the middle of the illness. Diagnosed at first as ordinary catarrhal jaundice. No fever, pain insignificant, except just at the beginning. Urine deeply bile-stained; stools pale. Van den Bergh: direct—delayed biphasic. Cholecystography: very faint shadow of gall-bladder, normally shaped.

At operation, gall-bladder was not enlarged; no stones felt, no adhesions or thickening. All along the left side of the common bile-duct were large, soft, red lymphatic glands, nearly as large as walnuts. Several of these were removed. The gall-bladder and ducts were not opened.

The jaundice cleared up in a week, bile returned to the stools, and the urine became normal. The symptoms have not returned. The glands showed microscopically a simple inflammatory swelling, probably due to the infection that was responsible for the original catarrhal jaundice.

CASE 3. *Obstructive jaundice due to vateritis.*—Female aged 28. Jaundice started in September, 1926. Some abdominal pain, but not much. Bowels regular, motions pale. Urine bile-stained. Pulse and temperature normal throughout. No pain since February. Lost 10 lb. in weight. Slight resistance over gall-bladder, suggesting enlargement. Cholecystography: gall-bladder does not fill. Van den Bergh: direct—rapid biphasic.

At operation, in May, 1927, gall-bladder distended, full of "white bile." Ducts distended. Common duct opened, no stone present. Duodenum opened; no stone in ampulla of Vater, though it was thoroughly explored; ampulla very swollen and purple in colour. Common bile-duct distended down to the ampulla; probe arrested there. No obvious cause for the condition of the ampulla. Internal drainage established by a drainage-tube from the common bile-duct to the duodenum through the ampulla. Gall-bladder also drained for a few days.

The jaundice rapidly cleared up, and bile returned to the stools. The internal drain was passed some weeks later.

## THE ERADICATION OF BILHARZIASIS:

### A SUCCESSFUL ATTEMPT IN AN ENDEMIC AREA.

BY M. KHALIL, M.D. BRUX., PH.D., M.R.C.P. LOND.,

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AN attack on trematode infections through their intermediate host, the snail, has been attempted in various countries, especially in the Far East. Many chemicals have been advocated, but the most potent are copper compounds,[1] which were first tried on the actual snail-carriers of bilharzia in 1921.[2] An exhaustive study of the effect of copper sulphate on agriculture in Egypt was carried out prior to the present attempt,[3] which was undertaken, at the beginning of April, 1927, at an Egyptian oasis *Dakhla*, 450 kilometres from the Nile. It is reached partly by railway and partly by desert motor-cars, so that its situation ensured a complete isolation rarely available elsewhere.

Forty per cent. of the inhabitants of the village submitted their excreta for microscopical examination; 63·5 per cent. were found infected with *Schistosoma hæmatobium*; *S. mansoni* was totally absent. The main stream of the village, originating from an artesian well, was found to contain large numbers of bullinus snails. Copper sulphate was continuously added to the stream for four days and nights by a specially improvised apparatus. The dilution aimed at was five parts of copper sulphate to a million of water. At the end of the experiment all bullinus snails were dead. The water flowing through the stream was calculated at 79·30 cubic metres per hour, and 38·5 kg. of copper sulphate were used.

After six months the area was visited again and carefully surveyed. No living bullinus snails could be found, in great contrast to their abundance before the experiment. The six months interval was the hottest period of the year, and the most favourable time for the propagation of mollusca. The area will be surveyed at intervals, and if the result remains as good, similar experiments will be tried in the Nile Valley itself. No deleterious effects were observed on the vegetations, animals, or man as a result of the experiment.

The details of the trial and the description of the apparatus especially devised for automatically delivering a constant dilution of copper sulphate will be the subject of another publication.

I am indebted to Dr. M. Helmi, of the Research Section, Public Health Laboratories, for his valuable coöperation during that trial.

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# Medical Societies.

## ROYAL MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.

AT a meeting of this Society held on Nov. 18th, Dr. JOHN COWAN, the President, in the chair, Mr. ROY YOUNG opened a discussion on the

DIAGNOSIS OF SURGICAL DISEASES OF THE KIDNEY.

In suspected urinary trouble, he said, routine examination entailed: (1) A complete history and a thorough examination of the patient, with blood pressure readings. (2) Chemical and microscopic examination of the urine, and bacteriological examination of a catheter specimen; also a record of the amount passed in 24 hours. (3) Radiography of the urinary tract. (4) Estimation of the total renal efficiency. (In some cases this might be dispensed with.) (5) The first cystoscopy—as essential as retinoscopy was to the ophthalmologist—the whole bladder was examined and the appearance of the ureteric orifices and the rate and character of the efflux from them was noted, together with a colour test. A second cystoscopy might be needed for collection of urine separately from the ureters, for location of stone or for pyelography. Such an examination involved expense and delay; it should stop when it was felt that an accurate diagnosis had been made. The necessity for complete examination of the *whole* urinary tract was, however, shown by the following case:—

A man had been under treatment for nephritis as albumin had been found in his urine. After prolonged treatment without benefit, he changed his doctor. His new adviser got the urine examined bacteriologically; coliform bacilli were found, and the patient was treated with a *Bacillus coli* vaccine. After a time, being regarded as cured, he was sent for a holiday. On the second day of his holiday he had to be admitted to hospital, where a large phosphatic calculus was removed from the bladder. On his return to Glasgow, as he appeared to be no better, he came into the Western Infirmary, where Mr. Young removed an enormous calculus, together with a functionless pyonephrotic right kidney.

*Renal Infections.*

Mr. A. H. JACOBS said that the symptoms of renal infections might be exhibited in a fulminating, acute, or chronic form, but all types had one sign in common—namely, the urine contained organisms and pus, the latter varying in quantity from a few cells to a thick deposit. Frequent and sometimes painful micturition, occasionally accompanied by a dull ache or pain in the loin, were the usual urological symptoms of which the patient complained. Generally the pyuria was chronic and rational treatment could only be adopted after trying to find out: (1) its source; (2) whether one kidney or both were involved; (3) to what extent the renal function had been impaired and the substance of the kidney destroyed; and (4) whether there was any complication such as ptosis, calculus, or hydronephrosis which would tend to keep up the infection or predispose to its recurrence. In about 90 per cent. of cases the causative organism was the *B. coli communis*. Many pathological conditions—particularly intestinal stasis—tended towards abnormal multiplication of these organisms, which were then readily carried to the kidneys by the blood. In the less common staphylococcal and streptococcal infections evidence of old or recent septic foci might be found on cutaneous or mucous surfaces. On cystoscopy evidence of cystitis was almost invariably found, and this explained the predominance of bladder symptoms in renal infections. Cystitis was rarely a primary disease. In the words of Boyd, "The bladder resembles the stomach, in that it makes its voice heard above that of its neighbours, although it is they that are really suffering." Having found a cystitis, it was necessary to seek further for a focus in the urinary tract, and Mr. Jacobs briefly described some of the appearances that might be found on further examination. He concluded by saying that he had never seen any serious sequelæ from pyelography, though renal colic was sometimes so severe as to require morphia. He had never carried out this examination in the fulminating or acute types of infections, and did not advise that it should be done, except in certain special circumstances.

*Tuberculous Disease.*

Mr. J. MILL RENTON made the following general statements:—

1. Although tuberculous disease of the kidney is always secondary to some other focus of tubercle, the primary disease is often difficult or impossible to detect.
2. The disease is almost always unilateral to begin with and tends to remain so for a long period, but shows practically no tendency to spontaneous cure.
3. Its symptoms, in the great majority of cases, are entirely referred to the bladder and consist of frequent and painful micturition associated with pyuria; these may be the only symptoms even up to an advanced stage of the disease. In his own experience it has been quite exceptional to find any pain or tenderness in the renal regions.

Any young adult suffering from pain and frequency with pyuria might have tuberculous disease of the kidney. Rarely an attack of hæmaturia might be one of the first symptoms. Ordinary clinical examination was often negative, but occasionally a deposit of tubercle might be found in the epididymis associated with a renal lesion, and in some cases a thickened ureter could be felt per vaginam or per rectum. Bacteriological examination of the urine was of the greatest importance. Pus was present whenever there was a lesion of the kidney, but there might be tubercle bacilli in the urine without pus in cases of generalised tuberculosis without a definite lesion of the kidney. It was now possible to find the tubercle bacillus in the great majority of cases, and where it could not be detected animal inoculation might give a positive result. A marked *B. coli* infection might mask a tuberculous lesion, especially in women. Cystoscopy was essential for accurate diagnosis and often catheterisation of the ureters was required. In a few advanced cases the latter might be impossible. It could sometimes be done later, after treatment with tuberculin, rest, and urinary antiseptics. Should these fail, said Mr. Renton, the following methods might be tried to show where the lesion was:—

1. Injection of indigo-carmine, either into a muscle or into a vein. If the renal disease is advanced the excretion of the blue colour is usually delayed or absent on the affected side. Unfortunately, in early cases the dye is excreted just as well by the tuberculous kidney as by the normal one.
2. Radiograms may show a shadow where there are caseous masses or calcareous deposits in the kidney.
3. Catheterisation of the ureters after opening the bladder has been suggested, but may be very difficult or even impossible and should not be attempted.
4. The operative exposure of both kidneys has been employed, but is not to be recommended.
5. Both ureters may be exposed extraperitoneally above the pelvic brim (Fullerton). The ureter on one side may be thickened, whilst the other is normal. A catheter may be inserted through a small incision into one or both ureters and urine collected, the small opening being afterwards closed.

This last method Mr. Renton considered satisfactory in the few cases in which it was impossible to make a reasonably certain diagnosis by less drastic methods. He thought pyelography quite unnecessary in the diagnosis of renal tubercle. The additional information it gave did not justify its regular use.

*Renal Calculus.*

Mr. J. SCOULER BUCHANAN pointed out that colic and hæmaturia (in macroscopic or microscopic amounts) were common to many renal conditions. When the patients were examined with X rays a positive finding might not be obtained, perhaps owing to obesity or because the stone did not cast a shadow. Often calcareous glands or phleboliths occupied the renal and ureteric regions and obscured or simulated stone. By cystoscopy, ureteral catheter-

isation and pyelography, many cases could be cleared up. Localisation was important because it often saved the kidney from unnecessary trauma. When the kidney was laid open widely in search for stone the patients lost much blood both during and after operation, and urinary fistula sometimes followed. Hydronephrosis, if present, could be demonstrated definitely, even in the early stages, by ureteral catheterisation and pyelography. Moderate degrees of dilatation of the pelvis and calices could not be made out at operation, and the surgeon might thus return the kidney to its bed with a false sense of security as to its future. A pyelogram would give him a pictorial idea of its condition. Stones which the X rays did not show could generally be demonstrated by pyelography.

Mr. Buchanan did not regard the occurrence of colicky pain during injection of sodium iodide into the ureter as of much value from a diagnostic point of view. Once pain was complained of, the injection should be stopped. He ended by saying that he had found the newer methods of great value, and had not known any untoward condition to result from their use.

*Tumours and Congenital Abnormalities.*

Mr. W. W. GALBRAITH said that the vast majority of renal tumours were malignant and when renal swelling could be palpated the prognosis was grave. On the other hand, many renal tumours gave early indication of their presence by eroding a vessel and causing hæmaturia, generally painless, although sometimes accompanied by colic caused by the blood clotting. Pain in the back was often absent and was often no more than a slight ache. Early investigation of the urinary tract was essential, preferably while blood was still present in the urine. Rest in bed for a day or two would generally cure the bleeding, but its recurrence was almost certain, though it might not take place for many months, when treatment might be too late to cure. In these cases urinary investigation at the very least implied cystoscopy, and the estimation of the relative efficiency of the two kidneys. For this purpose Mr. Galbraith used an intravenous injection of 5 c.cm. of a 4 per cent. solution of indigo-carmine. Though this test was of great value in differentiating the diseased from the normal kidney, it only applied, he thought, where more than one-third of the kidney was destroyed. Thus, in the very early stages of tumour formation, cystoscopy and indigo-carmine would not help towards showing the exact nature of the disease. In such a case—and indeed in every case of actual or suspected renal tumour—he invariably made bilateral pyelograms. In the early stages all that might be seen was some elongation and thinning of the calices. It was almost essential that double pyelography be done as it was only thus that kidneys "normally abnormal" could be excluded. Variations in the normal pelvis were common. Specimens taken from either kidney when the ureters were catheterised before pyelography were of little value, for he had never found tumour cells on microscopic examination of the urine thus obtained, and any blood present might be due to trauma. In cases of hæmaturia to which no cause could be ascribed the patient should be carefully watched and repeatedly examined at intervals of a few months over a prolonged period.

In the congenital anomalies, continued Mr. Galbraith, the indications might be various, and the difficulty was to know when the tests should be applied, but where a patient complained of a swelling, or a vague pain, or indefinite urinary symptoms, and where the swelling or pain lay somewhere in the region of the urinary tract, and where no definite organ could be shown to be the cause, a full examination of the urinary tract might prove invaluable. It was without risk, and practically painless, required no more preparation than that necessary for an X ray photograph, no general anæsthesia, and no abstention from the patient's usual daily routine.

*Limitations, Difficulties, and Dangers of Diagnostic Methods.*

Mr. J. R. LEARMONTH, drawing attention to the need for strict asepsis, said that in uninfected cases freedom from chills and fever after the examination might be taken as showing the attainment of surgical cleanliness; it was almost certain that they were the result of temporary bacteriæmia, and during the comparable chills which accompanied pyelonephritis blood culture was positive in two-thirds of the cases. In a recent series of 500 pyelographies only seven patients had developed pyrexia above 100° F. Contra-indications to the use of the cystoscope were: (1) when the patient was aged and infirm; (2) when he was greatly weakened; (3) when there was bilateral renal impairment of an extreme degree, as detected by clinical data, studies of the blood chemistry, and renal efficiency tests; and (4) when it was apparent that no surgical procedure could be of any benefit. Under the first three conditions suppression of urine might occur after the examination. In introducing the cystoscope, phimosis, an unusually narrow meatus, or a urethral stricture might require correction. If the last-named must be dilated before the cystoscope can be passed, it was probably better to defer cystoscopy for a few days. Where mere inspection of the bladder could solve the problem, the routine passage of ureteral catheters was to be condemned. The conditions making it justifiable to catheterise the ureters were the presence of pus or blood in the urine—not accounted for by the condition of the bladder and urethra—and the need to determine the individual function of each kidney, to make a pyelogram or to identify a ureteral stone. Infection might be conveyed to a non-infected kidney by passing a ureteral catheter through an infected or tuberculous bladder, and precautions must be taken against this. Previous exhibition of urinary antiseptics helped to reduce the amount of infection; the bladder must be well washed out before the cystoscope was introduced; and in certain types of instrument the ureteral catheter might be passed while continuous irrigation went on through the cystoscope. With these precautions the risk of infecting the kidney was very slight. There might be anatomical difficulty in finding the ureteric orifices and introducing the catheters. Thus the ureters might enter the bladder at abnormal positions; the presence of a cystocele might distort the vesical picture; and in infected bladders, especially when the infection was tuberculous, scarring from cystitis and ureteritis may impede the passage of the catheter or even prevent the identification of ureteric orifice. In this case it might be necessary to expose one or both ureters in the loin. Pyelography should not be attempted (1) when a diagnosis could be reached without it—e.g., in hydronephrosis by obtaining a large amount of residual urine from the kidney pelvis; (2) in the aged, infirm, or emaciated; and (3) in acute infection of the kidney. Though it was usually taught that pyelograms should not be made on both sides at the same time, he had no hesitation in doing so when it seemed desirable, and had observed no ill-effects. The solution employed for pyelography was not in itself dangerous. It was non-irritating, non-toxic, easily sterilised, almost neutral in reaction, and flowed into and out of the pelvis as easily as water. Its only disadvantage was that it is not germicidal: germicidal media had been described, but had not come into general use. Care must be taken not to introduce too much solution. Though the patient was conscious and thus able to complain of the pain to which over-distension gives rise, the catheter might be pushed so far that its eye rested in a calyx, so that pain might be felt after the introduction of enough fluid to distend the calyx alone. This error was easily recognised and rectified by withdrawing the catheter an inch or so. The calibre of the catheter should be such that any excess of fluid could escape down the ureter. Fluid introduced at too high a pressure was apt to find its way into the intrarenal venous system, and this possibility

ruled out pyelography in acute renal infections. After the radiogram was taken the fluid should be removed from the renal pelvis with a syringe before the catheter was withdrawn. Lastly, the interpretation of the pyelogram was often beset with difficulties, and they must always be considered in the light of the clinical data.

## LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

### *Ultra-Violet Light Therapy in a General Hospital.*

AT a meeting of the Federation held on Nov. 27th Dr. JUSTINA WILSON, after paying tribute to Bernhard, Rollier, and Finsen as founders of modern light therapy, claimed that a rational therapy could only be based on knowledge of the physiological and pathological relations of the human organism to light. Ultra-violet light was no indifferent or harmless agent. French authors had recently described profound auto-intoxication as the result of irradiation, and Guillaume and l'Agrifoule had shown that while a strong source of ultra-violet light might increase the resistance of some organs, it undoubtedly decreased the resistance of the hæmopoietic organs. In many cases ultra-violet light acted like protein shock, bringing about a prolonged negative phase. At the present time empiricism had outrun scientific research, and it was necessary to work at this problem, for indiscriminate handling meant failure. The first thing was to realise the inferiority of all sources of light to that of the sun. The second was to understand the quality and quantity of radiation given by the chief types of lamps. Artificial sources of light could be roughly divided into three classes:—

1. Those with chiefly visible rays and some (infra-red) invisible—e.g., all heating apparatus from the match to the electric arc, and all apparatus for radiant heat, hot bottles, &c.
2. Those whose emission produces a single type of (ultra-violet) radiation—i.e., the different forms of mercury vapour and Kromayer lamp.
3. Combined sources such as carbon arcs, arcs with metal (iron, tungsten) electrodes, and carbon arcs with metallic cores.

Ultra-violet therapy was indicated for surgical tuberculosis and rickets. General light baths in tuberculosis of joints, bones, glands, and skin. Tuberculous peritonitis, both serous and dry, reacted well to ultra-violet light, the only exception being when the disease arose from a tuberculous focus in the female adnexa. In fact, all forms of urogenital tuberculosis were refractory to light. Apart from tuberculosis, rickets, wounds, ulcers, burns, ununited fractures, no disease was an absolute indication for light; but it was useful in convalescence, after surgical operations with loss of blood, after infective conditions such as typhoid, and as a prophylactic after illnesses which might lead to tuberculosis, such as influenza, measles, and pleurisy. The effect of light on sleep, appetite, and blood regeneration was marked. Its value in whooping-cough was not yet settled; Huldschinsky had had good results in some 30 cases. The good effects observed in arthritis, fibrositis, neuritis, or sciatica were often due to heat. When the toxic focus underlying these conditions had been removed light was a valuable adjunct because of its physiological invigorating effect.

A rational light therapy was based on the great law of light, which runs: To have effects, light must be absorbed. The basal cells of the epidermis were endowed with specific light sensitivity; light acted directly on these cells, either stimulating and vitalising their functions and secretions, or destroying them. Light also had an indirect effect on the deeper tissues and organs. It was difficult to understand how short non-penetrating rays could affect the body generally, yet a whole series of phenomena proved their powerful effect on protein, carbohydrate, fat, and mineral metabolism; also on the blood picture and on muscle and nerve. The chief theories put forward to explain this were Schläffer's energy theory, and Rollier's theory of transformation. The simplest and most rational explanation was due to Jesionek, who believed that absorbed light stimulated certain vital cell products which reached the tuberculous focus via the blood and lymph stream.

Three phenomena expressed the effect of light on the human skin: (1) hyperæmia, (2) erythema, (3) pigmentation. The first was an immediate effect primarily due to heat rays dilating the capillaries and lymphatics, and giving rise to increased elimination of toxic products and increased phagocytosis. Erythema was a late response of the skin to the chemical rays. Direct light therapy might be used to stimulate the normal functions of the basal cells—e.g., the germinative function in the treatment of non-healing wounds, skin grafts, indolent ulcers, burns, and non-uniting fractures. Light could also be used to stimulate and regulate the keratin-forming power of the basal cells, in any condition where this was abnormal, such as eczema, psoriasis, acne, or alopecia. In acute eczema good results could be achieved by using the cold light of the mercury-vapour lamp, and avoiding flooding the capillaries by infra-red rays. Strong doses were necessary, and the use of a sensitiser (such as salt and water) was an advantage. In psoriasis plaques should be first removed by using white precipitate ointment overnight, 10 per cent. salicylic ointment in the morning, followed by a soap bath, then a general light bath, and finally intense and direct treatment to the worst parts. In acne vulgaris, where there was always disturbance of the keratotic function of the cells, a combined source of light was often better than the mercury-vapour and the Kromayer lamp when much induration was present. The greatest triumph of ultra-violet light was in the treatment of lupus by photo-chemical inflammation. Jesionek's technique aimed at the production of periods of acute inflammation by mercury vapour, alternating with cold boric compresses, general light baths being given in addition.

In gynæcology, light was an indispensable adjunct to conservative treatment of subacute and chronic inflammatory conditions of adnexa, vulva, and vagina. In amenorrhœa arising from infantile conditions good results were gained by a system of cross-fire radiation to the ovary from within and without. Contra-indications were acute inflammatory conditions and the menstrual period, as in both of these the bactericidal power of the blood was reduced.

## ROYAL PHYSICAL SOCIETY OF EDINBURGH.

AT a meeting of this Society on Nov. 21st Dr. DOUGLAS GUTHRIE read a paper on

### *Pharyngeal and Laryngeal Pouches in Man and Animals.*

He said that pockets, or *ganahs* as they are called, were sometimes artificially produced by criminals in India by means of a lead weight attached to a string. The leaden disc was retained in position continuously and served to deepen the normal hollow (sinus pyriformis) at the entrance of the larynx, and the pouch which was thus gradually formed became a safe hiding place for coins or precious stones. This pouch differed in site and origin from the pharyngeal diverticulum which occasionally developed behind the larynx. This was of the nature of a hernia and sometimes demanded surgical attention. It was interesting to note that in the pig a pouch was normally present at this point in the posterior pharyngeal wall, but no such structure existed in other domestic animals. Other pouches such as were found within the larynx were of interest to the comparative anatomist. In man, there was a depression, the laryngeal ventricle, just above each vocal cord, and from this a little pouch or saccule extended upwards for a variable distance. In the gorilla and chimpanzee this extension, uniting with its neighbour

of the opposite side, reached as far as the root of the neck; in other monkeys the two united saccules occupied a large cavity in the hyoid bone. Absent in the sheep and ox, the ventricle and saccule were found in the dog and pig, whilst in the horse the saccular part was relatively large. Advantage was taken of this fact in the operation of ventricle-stripping to cure "roaring" in horses. Dr. Guthrie demonstrated the shape and contour of the saccule in various species by means of a series of casts. The function of laryngeal pouches was, he said, uncertain. They might serve to lubricate the vocal cords or might act as resonating chambers, or they might simply be the degenerate remains of the accessory air reservoirs seen in the frog and in birds.

## THE PROBLEM OF GOITRE.

INTERNATIONAL CONFERENCE HELD IN BERNE, AUGUST 24TH–27TH, 1927.

*Report by* Dr. F. DE QUERVAIN,
PROFESSOR OF SURGERY IN THE UNIVERSITY OF BERNE; HON. FELLOW OF THE ROYAL SOCIETY OF MEDICINE.

THE first suggestion of an international conference on goitre came from Prof. Aschoff (Freiburg) who proposed a meeting of scientific workers to study the behaviour of goitre throughout the watershed of the Rhine. The idea was handed on to the Swiss Goitre Commission by the late Prof. Hotz (Basle), but the Commission determined to widen the inquiry to include all countries and continents, and to limit the first conference to the purely scientific problems of pathological anatomy and physiology, and endemiology and ætiology, leaving clinical questions for discussion later. At a later stage was added a section of prophylaxis, to form, as it were, a transition to the practical questions. Preparations were made to hold the conference in 1923, but the political situation of Europe made postponement desirable, the delay having the advantage of bringing in all countries interested in goitre. Only from the United States of America was the representation less complete than had been hoped. The decision not to throw open the conference to general discussion, but to invite a limited number of scientific workers of all shades of view to speak on important problems, justified itself in practice and may serve as a model for similar large congresses in future.

### *Pathological Anatomy.*

In this subject international discussion was especially necessary since mutual understanding of scientific work is made increasingly difficult by differences in nomenclature. The preliminary papers of ASCHOFF, WEGELIN, and MARINE, and the remarks made in the discussion by ROUSSY, JOSSELIN DE JONGH, and others helped notably to clear the situation, with the help of an exhibition of naked-eye and microscopic preparations from most European countries. While unity prevailed over goitre of the new-born and adolescent, and over colloid goitre, the nature of nodular parenchymatous goitre gave rise to a lively discussion. Wölfler's conception of its origin from fœtal remains hardly gained any support and should be regarded as finally wiped off the slate. On the other hand, no complete agreement could be reached whether goitre nodules are to be regarded as "parenchymatous overgrowths" or as "adenomata." The former interpretation was supported from the French side, the latter from the German and Swiss side. Fundamentally this is not a thyroid problem, but rather one of general pathology—namely, to determine the boundary between limited hyperplasia and new growth. It was therefore not to be expected that the question would be cleared up by taking the thyroid as an example. The determination was reached to set up an international nomenclature, using as its basis in essentials the so-called Berne scheme. A small commission of pathological anatomists was entrusted with this task.

Of special interest for the estimation of thyroid enlargement were the series of preparations set up by the pathological institutes of Freiburg (Aschoff) and Würzburg (B. Schmidt) dealing with the development of the thyroid at various periods of life, and in goitrous and non-goitrous regions. The life-curve of the thyroid, especially brought out by Aschoff, will contribute materially to a clear limitation between normal and morbid processes. If a survey is taken of material derived from various parts of Europe the conviction is soon reached that endemic goitre is fundamentally the same everywhere, and that local differences, apart from the absolute frequency of goitre, are due to relative frequency of the separate forms. In the centre of a region where goitre is endemic, the nodular parenchymatous form prevails; at the periphery colloid goitre, diffuse at first, becoming nodular in later life; in the goitrous parts of the lowland separated from the great endemic centres diffuse colloid goitre only exceptionally becoming nodular.

The most severe form of goitrous thyroid change—namely, the cretin goitre—was discussed principally by WEGELIN. The cretin's thyroid is either atrophic with little adenomatous nodules, or there lie in an atrophic matrix nodules of some size, as a rule of a parenchymatous character, in which all forms of secondary changes may occur—calcification, cyst-formation, &c. In the cretin goitre colloid is only occasionally formed. The whole cycle of goitrous development with its various sequels was set out most clearly in the paper of Marine, who unfortunately was prevented from being present himself.

The discussion on struma maligna was opened by WEGELIN, whose recent book on the pathology of the thyroid is likely to remain for some time as the standard work. The type described by Langhans as "sprouting struma" is attracting more and more the attention it deserves. The only point on which agreement was not reached is the significance of the so-called hæmangi-endothelioma of the thyroid. That this is a special kind of tumour is put beyond a doubt by the Berne material, but its actual nature remains in dispute. Whereas Wegelin, in agreement with Hedinger, regards the tumour cells as endothelial, Roussy considers them epithelial. Cysts and hæmorrhages characterise the majority of these growths.

The conference next turned to consider the anatomical and physiological studies of WILLIAMSON and PEARSE, who draw a sharp distinction between secretion tissue and colloid storage tissue. Should the results of these two investigators be confirmed they certainly mark the greatest advance of recent years in our knowledge of this subject and will be of very real value in the interpretation of the histological picture. Their microscopical preparations were, on this account, of special interest to the members of the conference.

### *Pathological Physiology of Endemic Goitre.*

To the great regret of the conference, PLUMMER (Rochester, U.S.A.), who was to have introduced the subject, was prevented from coming himself and could not send his introductory paper in time. In his place DE QUERVAIN introduced the discussion. He began by laying emphasis on the fact that the pathological physiology of endemic goitre is not covered entirely by the problem of thyroid physiology and its disturbances. The morbid process which leads to goitre may influence the organism in other ways, first, via damage to the parental organism; and, secondly, by direct action on the body tissues, as also on the other endocrine glands. But damage to the thyroid itself occupies the foreground, and is in much greater degree accessible to anatomical, clinical, and experimental study than the other possibilities mentioned. From the practical standpoint, therefore, the physiology of endemic goitre must concern itself in the first place with the problem of the thyroid gland. After this preface de Quervain spoke of the influence of endemic

goitre on the thyroid function, showing how, in the majority of cases, the function is disturbed in a manner not as yet accessible to demonstration. In a small number of cases a secondary Basedow-effect is found, not only in diffuse, but also in nodular endemic goitre. This Basedow struma is geographically, and in part also genetically, to be distinguished from genuine Basedow,[1] even if a schematic clinical distinction is not possible. Frequently the Basedow-effect is released by a dose of iodine as small as 0·5 mg. daily. Much more often, however, the goitrous noxa leads to a diminution of thyroid function, whose clinical expression is seen in the picture of endemic cretinism. We must therefore distinguish between the cretin with atrophic thyroid and the classical symptoms of thyroid insufficiency on the one hand, and the goitrous cretin on the other hand, in whom the clinical picture, owing to later and less severe change in the gland, is a less complete one. In order to explain what are essentially plus-thyroid conditions as well as the minus-thyroid condition of the cretin, de Quervain assumes the possibility of a dysthyroid component. This may consist either in an abnormal blend of the various components of the secretion, or in the production of entirely unphysiological secretions. The former assumption is rendered very probable by present-day research. For the second assumption no absolute proof for or against has yet been brought forward. The significance of the striking dissociation in the picture of cretinism would be most easily explained by the assumption of a dysfunction. It is, however, possible that the goitrous noxa acts also on the body via the parental organism (heredity), and finally it may directly damage the tissues of the goitrous person, including the other endocrine glands, as has been taught by Virchow, Scholz, Ewald, and Bircher. Dealing with the circulation of iodine between the blood and thyroid de Quervain showed, on the basis of his own work and that of Sturm and Veil, that the iodine level in the blood possesses great constancy, and that its height depends on the functional activity of the thyroid gland. It is at its highest in Basedow, at its lowest—only about half or so of the normal height—in the cretin. If the latter is given iodine in excess it is rapidly excreted, since his thyroid gland is not in a position to synthesise it in the normal way. On the other hand, the iodine in the thyroid is partly brought into another chemical combination, whether it is stored up as colloid or whether in this new combination it leaves the thyroid at once without being stored.

The second paper was read for Prof. VON EISELSBERG by his assistant, Prof. BREITNER, who attempted on the basis of his earlier and recent work to explain the various functional conditions of the thyroid by the demands placed on it by the body. He distinguishes between hyporhœic and hyperrhœic conditions, denotes the different behaviour of the histological picture as eutrophic, hypertrophic, and hypotrophic. By combination of these possibilities he derives the various forms of goitre as they actually occur in practice. His classification is therefore, in contrast to that of Wegelin, Aschoff, Bérard, McCarrison, and Williamson, a combination of anatomical and functional. It approaches, on the other hand, the classification of Williamson in that it depends on a subjective estimation of the trophic condition of the gland. In opposition to his view the majority of those present emphasised the necessity of a purely descriptive classification for international use, independent of any theoretical conception. This does not prevent Breitner's view as well as that of Williamson from being of interest as working hypotheses. The action of iodine is construed by Breitner as corresponding to a "functional direction" of the gland—that is to say, in the hyperrhœic gland it gives rise to colloid storage, and in glands already overflowing with colloid it releases the secretion.

[1] *Basedow* is here used in the continental sense of exophthalmic goitre; the convenient compounds *Basedowizierung* and *basedowificata* have been paraphrased with difficulty.

### *Ætiology and Epidemiology.*

Prof. LÉON BÉRARD'S (Lyon) clear and succinct introductory paper started with French experience, but touched the problem in its whole extent. Bérard takes the standpoint of multiplicity of ætiological factors and hazards the suggestion that the totality of the factors causing goitre disturbs iodine metabolism in the body—that is to say, produces iodine deficiency. Drinking-water plays the chief rôle as carrier of the yet unknown noxa. Age, sex, and heredity play a secondary but not unimportant rôle. Bérard's paper was supplemented by a valuable contribution from MCCARRISON which in his regretted absence was summarised by Sir JAMES BERRY. In the same way as the latter laid emphasis a quarter of a century ago, so McCarrison still insists that goitre is a syndrome which includes a great number of conditions of various origin. The proof of this he gave in a paper summarising his important and fruitful life-work. For endemic goitre in the narrow sense—goitre of the Alps and the Himalaya, as McCarrison puts it—he finds the pathogenetic explanation in a reasoned combination of iodine deficiency theory and infection theory. The latter is warmly supported by Galli-Valerio, who is only an adherent of the iodine deficiency theory to the extent that iodine is able to neutralise the noxa causing goitre where the latter is not acting too intensively. Iodine is the antidote whose employment should not prevent an interest being taken in all the essentials of general hygiene.

E. BIRCHER makes distinction between the endemic goitre of the Alps and mountainous regions of Asia, and the goitre of the European and American plain. On the other hand, he finds it necessary to bring in cretinism, cretinoid deafness, and endemic goitrous heart into the conception of the endemic goitre epidemic. In order to judge of the effect of prophylactic measures the variable character of the endemic and the shifting of its maxima must be borne in mind.

Discussion of the ætiology of goitre gave the impression of fairly general agreement on the assumption of a toxic cause which in a way still unknown is rendered more or less harmless by the physiological intake of iodine with the food. Goitre arises in general where either iodine deficiency exists or where the noxa works too intensively to be neutralised by the quantity of iodine normally present in the body.

On the question whether water or other food is the chief vehicle of the goitrous noxa, and on the method of action of iodine, various views are taken within the limit of this theory. Almost unanimous was the refusal of a specific goitrous infection. At this point two views were brought forward which cannot remain unmentioned, although they met with not a little scepticism. CROTTI (Columbus, Ohio) found in the blood of goitre-bearers spirilla and protozoa of various kinds, a whole flora or fauna which he thinks he can show also in the water of goitrous neighbourhoods. Dr. FOLLEY (Paris) related similar independent findings and demonstrated them after the conference in a case placed at his disposal in the surgical clinic. These findings must be tested, for in medicine the unlikeliest sometimes turns out to be true.

### *Prophylaxis.*

The three introductory papers by WAGNER JAUREGG (Vienna), MUGGIA (Sondrio), and SILBERSCHMIDT (Zürich) all recommended on the ground of existing experience general prophylaxis by means of iodised salt in physiological dose (5 mg. KI to 1 kg. salt). The carrying out of this prophylaxis in Austria during three and a half years has been accompanied by a perceptible retrogression in school goitre and the drawbacks of the proceeding (iodine-Basedow) are, according to Swiss statistics, not of a kind to prohibit its employment. The severest symptoms attributed to iodised salt come from North America where an altogether unphysiological dose—namely, 0·2 g. KI per kg. salt, has been added; that is to say, a dose which at the time of the first experiments of the kind in France 70 years ago had already led to iodine

Basedow. Moreover, the addition should in the general opinion be optional; the possibility should be offered of obtaining also iodine-free salt. For certain neighbourhoods Muggia regards the so-called "dumb" iodine prophylaxis to be indicated. Certainly it is argued by individual authors that any iodine prophylaxis must be carried out individually, but if this were done the chief aim of prophylaxis—its general influence of childhood in the fœtal period—would be lost. Only an influence exerted on the whole population exposed to goitre can lead to a result. Further, the argument that there are goitres in which iodine gives no result cannot be seriously maintained, for they are either the end-results of the usual endemic goitre (cysts and other degenerative forms), whose occurrence could have been prevented by timely iodine prophylaxis, or they are forms of goitre, like those described as lymphadenoid goitre by Williamson, Pearse, and McCarrison, which play practically no rôle in the goitrous areas of the Alps. For where these latter occur or predominate the observations made by McCarrison in regard to the kind of food-supply would have to be considered.

Alongside the general influencing of the goitrous endemic by physiological iodine SILBERSCHMIDT especially emphasises the value of an individual treatment of school goitre with iodine by means of small doses (1 to 3 mg.), such as has been carried out especially in Switzerland, but also in Austria, and to which, given medical supervision, no drawback has been observed. The results of this school prophylaxis, or more correctly school treatment, were illustrated by wall diagrams from various countries.

The fear that physiological iodine addition to salt in cattle might cause a reduction in the production of milk or in the reproductive power has been set aside by experiments carried out by Dr. Stiner at the instance of the Swiss Health Office. In these the influence of iodine salt was found to be favourable in both directions. Interesting in this connexion are the observations of Nicolaysen and Lunde (Norway), according to which the feeding of fish with an iodine-containing fodder hinders the formation of goitre.

Towards the prevention of iodine-Basedow much would be gained if the administration of iodine preparations to patients, apart from doctors' prescriptions, could be entirely forbidden.

The aims of goitre prophylaxis, as brought out in the discussion, may be shortly summarised as follows. For man and cattle to supply the necessary physiological ration of iodine. For the already marked school goitre to combat this by individual iodine treatment in medical hands. To ensure a normal composition of food-supply containing vitamins. Finally, to combat the misuse of iodine in unphysiological doses, especially in the adult. Should a more general application of these principles result, the conference will have done something not only for the scientific recognition of endemic goitre, but also for its abolition.

*A Retrospect.*

This concluding sentence recalls a historical incident. One of the first, if not the first, scientific and partly international conference on endemic goitre and its causes took place in Lyons in the year 1841. Discussion turned there as at present on the influence of drinking-water, height above sea-level, climate, and geological conditions. It was then, as now, set out that, for example, in Valais, Switzerland, the number of goitrous persons had diminished since sanitary orders had been enacted. At the conclusion a letter was read from Dr. Prévost (Geneva) which ascribed goitre to the absence of bromine or iodine in drinking-water. This idea of Prévost was followed up ten years later in Paris by the chemist Chatin, whose observations were confirmed in essential points by Dr. von Fellenberg, chemist of the Swiss Health Office, and by MacClendon. The whole prophylaxis discussion of this year's goitre conference has its roots in the short communication of Prévost to the conference of 1841.

Any members of the conference who desired at its conclusion to have practical demonstration of goitre and cretinism were bidden by DE QUERVAIN to the surgical clinic and to one of the institutions of the Canton of Berne in which more than 100 cretins are cared for and put to useful work corresponding to their abilities. By the side of cases of pure athyreosis, having no connexion with cretinism, he demonstrated on the film and in person cretins of all types with and without goitre, and the visitor could form his own picture of the damage to which the goitrous endemic leads in its worst grades and draw his own conclusion as to the necessity for a general campaign.

He could also convince himself of the validity of the remark made by Maffey and Rösch in 1844: "that the belief in a 'normal' cretin or in a cretin prototype can only hinder the approach to truth and that only abundant experience and long-continued observation will allow us to recognise the pathognomonic signs and to distinguish them from accidental symptoms."

# Reviews and Notices of Books.

THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY IN THE WORLD WAR.

Vol. VI., Sanitation. Washington: Government Printing Office. 1926. Pp. 1141. $3.25.

Vol. XI., Surgery. Part I. 1927. Pp. 1324. $4.

THESE two books form part of a series issued by the War Department of the U.S. Federal Government. Vol. VI. is devoted to sanitation, and its detail is overwhelming; for example, 44 pages are devoted to an account of how the army hut developed, and how the space allotted to each man increased from 27 square and 291 cubic feet to 53 square and 528 cubic feet, with 5 feet between the men's heads as they slept. There is need, in fact, of an index-handbook to announce briefly what the sanitarians decided, giving references to the volume and page where their preliminary investigations are recorded.

The cause of hygiene in the American army during the war was helped by the prestige that had been gained in peace-time, at Panama and elsewhere, by Surgeon-General W. C. Gorgas. With three other physicians, he was early put on a housing board, most of whose recommendations were at once accepted; one of them, however, seems to have been completely overlooked—namely, "that the outer walls [of the huts] be so constructed that sections may be raised, so as practically to convert the dormitories into outdoor sleeping porches." How useful this provision would have been found in the influenza pandemic may be guessed from the fact that at East Boston, Massachusetts, the open-air treatment of influenzal pneumonia reduced mortality by 50–70 per cent.[1] Amongst American troops the influenza epidemic was first noted on Sept. 7th, 1918, in three transports (from whence unstated) five days before reaching Archangel. On the following day it broke out at Camp Devens, Massachusetts, planned for 30,000 men, but now overcrowded with 45,000; here 10,000 cases were reported within three weeks. The peaks of the epidemics occurred among the United States troops in France in the third week of September, in the transports going to France about Oct. 11th, in the French army in the third week of October, and in the British Expeditionary Force in the first week of November.

There are many fascinating essays in this volume, on subjects including baking as influenced by the pH of the water, the addition of serum to the dough, the choice of camp sites, and antimalarial work, whose cost varied between £20 and £700 per square mile. "Shoes" (anglice, boots) were very carefully chosen for the army before the war, but were found too light

[1] Ministry of Health's Report on the Pandemic of Influenza, 1920, p. 265.

for the trenches; the British pattern lasted six months instead of four, and "several millions" were therefore ordered, but, being made on European lasts, did not fit United States soldiers, and are said to have given the 42nd Division sore feet on their march into Germany. There are very valuable notes on feeding troops in transports, and on the importance of the "food and nutrition" officer, who does nothing else but examine the messing of units, trying to improve it.

Much trouble was taken to lessen or prevent venereal disease in France. There were lectures and other diversions, and the High Command did its best to prevent infectious contacts and, alternatively, to secure prompt prophylactic treatment. Congress had early ordered the suppression of prostitution in the neighbourhood of camps in the U.S.A., but in France all that could be done was to put brothels out of bounds. The French became alarmed; they had hoped that venereal disease would have been confined to the brothels, and were now anxious lest it should become generally disseminated. They alleged that rape increased; this proved to be an error. Clandestine prostitutes, when found, were banished from about United States camps, and to associate with them in Paris was a military offence. Prophylactic treatment had been adopted by the United States army in 1912. It was ordered on July 2nd, 1917, that every man exposing himself to the risk of venereal disease should take prophylactic measures; if he did not do so, and became diseased, he was to be court-martialled for incapacitating himself by neglect. Further, it was ordered on Dec. 18th of the same year that every man returning from leave must, if sober, sign a certificate that he had not risked contracting venereal disease, or else must adopt prophylaxis, which would be administered to him if he was drunk. This order also declared that a high venereal rate in a unit was evidence that its discipline was bad, and was therefore a slur on its commander, casting doubt on his fitness for promotion. It also limited leave passes to four hours, not later than 9.30 P.M. Prophylaxis had fewer failures after four hours' leave than when all-night passes were issued. Much depended on how prophylaxis was done. Each station was in charge of an orderly who was supposed to administer the treatment. But when inquiry was made into 142 failures in one division it appeared that 102 of the men had done the disinfection themselves, that 60 had been given no soap, and 10 no ointment. When prophylaxis was supervised for six months by a zealous medical officer in a large camp of some 2000 men it was found that the only men infected were those who had neglected precautions. After the Armistice men were given a week's leave at Government expense at Aix, Biarritz, or other selected centres. They were inspected before they left their units, a doctor and orderlies with prophylactic equipment travelled with them on the leave-train, and they were again inspected on arrival, being warned of the risks of that place, and told what areas were out of bounds and the positions of the prophylactic stations, which were multiplied if necessary. In the first half of 1919, 415,755 men went thus on leave, 50 per cent. took preventive measures, and 323 cases of venereal disease occurred (0·25 per cent. of those who risked infection, and 0·08 per cent. of the whole). The success in the army generally was much less, for between September, 1918, and June, 1919, the number of cases was equivalent to an annual rate of 4 per cent.—i.e., no lower than that of the British army. The Commander-in-Chief was dissatisfied, made a personal inspection, and noted that brothels were not everywhere put out of bounds, and that prophylactic stations were not always easily accessible or well kept. All this goes to show how difficult it is to prevent these diseases, even when the aim is energetically pursued.

Vol. XI. is devoted to surgery. Its first part, here reviewed, treats of general surgery, orthopædic surgery, and neurosurgery, and is apparently produced regardless of expense, being fully illustrated, partly in colour. In the section on general surgery all the means employed by the combatants on the Western front for the purpose of destroying or disabling one another are first described—sometimes, we think, unnecessarily. For instance, a picture of a United States 14-inch coast defence railway gun has little bearing on the study of wounds in the world war, even though it was "evolved entirely by the United States Ordnance Department." Profusion of illustrations is, however, a fault on the right side, though it may swell the size and increase the weight of the book. Statistics, anæsthesia, wound shock, and localisation and extraction of foreign bodies under X ray control are discussed at length, and there are chapters on gas gangrene, tetanus, and trench foot. Wounds are classified and discussed in chapters devoted to various regions by divers authors. The chapter on the end-results of fractures of long bones seems to us to belong more properly to the orthopædic section, which occupies 200 pages of this volume.

The successful organisation of the division of orthopædic surgery was largely due to the foresight of the members of the American Orthopædic Association, at the annual meeting in Washington in May, 1916, when a resolution was passed that there should be appointed a preparedness committee "to consider the needs and equipment of orthopædic hospitals should such be required." In July, 1917, the suggestions made by the association were accepted by the Surgeon-General. The work of the division was divided into two parts—namely, the preparation of recruits from an orthopædic standpoint, and the prevention and treatment of deformities and disabilities caused by enemy action. The first part dealt with flat-foot and other static disabilities, such as faulty posture, which seem to have caused far more trouble among recruits and trained men than was observed in the British army. A number of American orthopædic surgeons were lent in the spring of 1917, at the request of Sir Robert Jones, to help in the military orthopædic hospitals in Great Britain. These officers rendered invaluable help, and at the same time acquired a knowledge of the special circumstances, and ways of dealing with them, which was afterwards very useful to the American Expeditionary Forces. Another smaller group of American orthopædic surgeons went overseas with the first American base hospital unit which had been organised in the United States. Profiting largely by British experience, splints were standardised, and ultimately the number of types was reduced to ten. A manual of splints and appliances was issued and revised when necessary. Various forms of the Thomas splint and the Balkan frame were largely used with good results. These are all well represented in the illustrations to this section. In the treatment in France a method of "radial control" was established whereby the fracture or joint case remained under special care all the way from the casualty clearing station to the hospital ship which carried the patient back to the United States. Until such a method was established it was found that many fractured limbs reached home with badly fitting splints and malunited bones.

In December, 1917, a special training battalion camp was established in France for the training of men physically unfit for marching and combatant duty—men in whom physical defects had developed or had been accentuated since entering the army. There were malingerers among them, but in the opinion of the anonymous writer of the chapter a large number were men of insufficient muscular development. The account of this work of restoration is of great interest, but it is too large a subject to be successfully epitomised here. A large number of the men were not returned to the firing line, but rendered fit enough to do work as hospital orderlies, motor drivers, and the like. Great attention was paid in the orthopædic division to the care of the soldiers' feet and to the modification, when necessary, of his boots. Recruits with insufficient muscular

strength apparently constituted, everything considered, the most troublesome group.

Two chapters are devoted to fractures of the upper and lower extremities, and illustrated by many clear X ray prints. The treatment adopted did not differ essentially from that used in British hospitals, but the Americans seem to have used the Hodgen splint more freely. Chapter V. gives a most interesting and valuable account of the treatment of non-union in atrophic long bones and in chronic suppurative osteitis by autogenous bone-grafts. Most of these were taken from the healthy tibia with the Albee saw. The crest of this bone was first used, but afterwards its inner surface was preferred, because regeneration of bone was better there. The inlay type of graft was used in the tibia, and usually on the forearm. For the humerus and femur the intramedullary, or as it is here called, the intermedullary, graft was found to answer best, owing to the lack of substance to hold an inlay. In some cases one end of the graft was intramedullary, and the other inlaid on to the condyles and supracondylar region. A study of this chapter with its case-reports and X ray pictures and detailed accounts of procedure will well repay any surgeon who is about to undertake an operation for non-union of a fracture. The two chapters on the amputation service and care of the amputated in the United States are full and well illustrated. American experience and practice seems to agree with our own, but much more elaborate types of provisional artificial limbs were supplied in the United States than in Great Britain. Nearly all the types of legs shown in these illustrations had artificial feet instead of the peg or block usual in our temporary prostheses. The supply of permanent prostheses seems not to come within the province of the medical department.

The section on neurosurgery begins with a chapter on organisation. The number of available surgeons with special experience of head injuries was small, and it became necessary to instruct a number of officers for duty in this subservice. In addition to such instruction, the senior consultant in neurological surgery, American Expeditionary Force, issued full directions to neurosurgical teams, which are here reprinted and which were of the highest value. The advisability of early treatment is shown by the facts here quoted, from which it appears that in the autumn of 1917, in a series of 200 cases operated upon in a British casualty clearing station which was given over entirely to wounds of the head, the mortality was 28·5 per cent., while a similar series operated upon by members of the same team in a base hospital had a mortality of about 45 per cent. The spinal cases did very badly throughout, as was anticipated. The remaining 12 chapters deal with various aspects of neurological work, including five on peripheral nerve injuries and their treatment. The results of 470 operations on such cases, whether in the nature of neurolysis or of suture, yielded 34 per cent. of "good," and 36 per cent. "mediocre" results, and 26 per cent. "failures." As is pointed out, the estimation of good and mediocre results rests on no accurate basis, and is largely influenced by the personality of the observer. The writer of this article says of nerve transplantations: "The employment of the transplant, either 'auto' or 'homo,' as a practical method of bridging defects in peripheral nerves has proven a dismal failure in the hands of surgeons of our country." A report of a number of interesting experiments on animals, made to investigate the formation of neuromata in severed nerves, concludes with the statement that absolute alcohol injected into the nerve 2–2·5 cm. from its cut surface in several small injections arranged so as to involve all parts of the nerve trunk, is a procedure which is successful in preventing neuroma formation, thus vindicating the method of those surgeons who have adopted such a procedure as a routine in re-amputation or the treatment of painful bulbous nerves in stumps. The section concludes with a full report of experimental observations on nerve-transplants.

PSYCHE MINIATURES.

By Various Authors. London: Kegan Paul, Trench, Trübner and Co., Ltd. 1927. 2*s*. 6*d*. each.

*Diagnosis and Spiritual Healing.* By F. G. CROOKSHANK, M.D. Lond., F.R.C.P. Pp. 101.

*Rheumatic Diseases.* By MATTHEW BURROW RAY, D.S.O., M.D. Pp. 91.

*Dermatological Neuroses.* By W. J. O'DONOVAN, O.B.E., M.D., M.R.C.P. Pp. 99.

*Idiosyncrasies.* By Sir HUMPHRY ROLLESTON, Bart., K.C.B., F.R.C.P. Pp. 119.

*On History.* By A. L. ROWSE, Fellow of All Souls College, Oxford. Pp. 103.

*Emergent Evolution.* By WILLIAM MORTON WHEELER, Ph.D., Professor of Entomology at Harvard University. Pp. 57.

*Man a Machine.* By JOSEPH NEEDHAM, Fellow of Gonville and Caius College, Cambridge. Pp. 111.

THESE little books belong to a series which is divided into two categories, medical and general. The general section covers a great deal of ground upon which modern medicine has made definite encroachments, while on reading the names of the various authors contributing to the medical section we can estimate that the instruction provided will be well informed and sound. Sir Humphry Rolleston gives an extraordinary number of examples of individual reactions which differ from those ordinarily observed, whether to outside stimuli or to drugs, and the little book is rendered additionally useful by the copiousness of its careful references. Many of these idiosyncrasies being dermatological, this volume may well be read in association with Dr. Donovan's contribution to the series. Dr. Ray's concluding words give the clue to his interesting book, which may be described fairly as notes to accompany the classification of rheumatic diseases made by the Ministry of Health in the report (No. 23, 1924) upon their incidence. "Since psychic states," he says, "acting through the endocrine system, have an important bearing on metabolism, a careful and more extended study of these reactions will greatly help us to a more thorough understanding of rheumatic diseases." This teaching accords well with that of Dr. Crookshank, who reprints here the Bradshaw lecture, given before the Royal College of Physicians of London last year, upon the theory of diagnosis (*vide* THE LANCET, Nov. 6th, p. 939, and Nov. 13th, p. 995), and a paper on the connexions between medical theory and spiritual healing read before the Hunterian Society at an earlier date.

The last three books on the list belong to the general section and in each the interweaving of medicine with general science is closely displayed, but in none more than in Mr. Needham's essay. This is a reasoned contradiction, from the point of view of exact biology, of those who do not recognise adequately the methodical importance of mechanism in science; and we can see its arguments being fully employed, either with endorsement or with reprobation, by future disputants. It can well be read in association with Mr. Rowse's study of the present tendencies of history, a reproduction of a contribution to the proceedings at Christchurch of the Essay Club, in which the difference between fatalism and historical determinism is discussed. He closes with a depressing estimate of human progress based on the surmise that "a healthy Neanderthal or Cromagnon man, who might as easily dispose of a modern athlete as any gorilla, could be held excused if he thought his bald and almost jawless successor to be in the highest degree degenerate."

A series of small volumes that point the way to large thinking.

INTERNATIONAL HYGIENE.

By C. W. HUTT, M.A., M.D., D.P.H., Medical Officer of Health, Metropolitan Borough of Holborn. London: Methuen and Co., Ltd. 1927. Pp. 261. 10*s.* 6*d.*

THE habit of "thinking internationally" is growing steadily amongst intelligent men and women, and there was scope for such a book as Dr. Hutt has written. It is obvious that for an island country the health of the mercantile marine, both its own and that of other countries, is of great importance to trade, while the fact that England is on the path of migration from the mainland of Europe to the Far West means that this country is liable to infections imported from all quarters of the globe. Dr. Hutt deals in interesting detail with these and other aspects of the problems of international hygiene. He begins with one of the fundamental problems—namely, how infectious diseases are kept out of a maritime country—and goes on to discuss land frontiers in relation to infectious diseases and the various sanitary conventions. Our dependence upon the Dominions and continental neighbours for our food-supply leads to a discussion of the international problems connected with food. The chapter on the difficult subject of drug habits opens up a new field of preventive medicine, and Dr. Hutt's summary of the working of the Dangerous Drugs Acts of 1920 and 1923 is admirably balanced. Following chapters deal with the health of the seamen, and in particular the problem of venereal disease. Writing of industrial hygiene from the international standpoint, Dr. Hutt stresses the point that any restriction in industry which makes for the health of the workers should be imposed equally on all nations; the existence of an International Labour Office and of the League of Nations Health Organisation, whose work is well set out in this book, may make this a practical ideal. Voluntary work such as that of the League of Red Cross Societies is also playing a valuable part in the international field. Interchange of public health personnel, made possible by the generosity of the Rockefeller Foundation, may prove the best means of all for pooling hygienic experience, and it was presumably Dr. Hutt's visit to Austria in such circumstances that stimulated him to write this admirable book.

## JOURNALS.

BRITISH JOURNAL OF OPHTHALMOLOGY. *September.*—This number is mainly devoted to hereditary and family diseases. C. H. Usher gives two pedigrees of hereditary optic atrophy. R. R. James a pedigree of a family showing hereditary glaucoma. R. C. Davenport a family history of choroidal sarcoma. Major J. N. Duggan and B. P. Nanavati have discovered a family with blue sclerotics, and the same authors a family with aniridia. The juxtaposition of these various narratives is calculated to enhance their value.

*October.*—N. Pines contributes a paper on arterial hypertension and retinal changes. The general practitioner is sometimes appealed to by specialists to record observations of this nature and we cannot but be grateful when the appeal, as in this case, is responded to. In over a hundred cases seen in general practice the blood pressure (systolic and diastolic) was correlated with the state of the retinal vessels as revealed by the ophthalmoscope, the urine being also examined in most cases. For this work considerable experience with the ophthalmoscope is required, and this the author possesses. His analytical table, in which the various signs of degeneration of the vessels are correlated with different degrees of hyperpiesis and with cases of diabetes, is of distinct value. The different vascular signs usually looked for are tabulated and the frequency with which they were found is noted, but the main importance is attached to the sign of translucency of the secondary arteries. (In the main arterial branches the blood column is so thick that it is itself sufficient to cause loss of translucency.) When translucency was complete the blood pressure was normal in all cases. When translucency was incomplete or absent the general blood pressure was in all cases abnormally high. This is a valuable observation, but needs checking by other observers, especially in regard to the age of the patients. In elderly patients a certain loss of translucency is the rule without the existence of any unduly high arterial tension.

*November.*—In the second of two short papers T. Harrison Butler reports a case of monocular diplopia which must be unique. The slit lamp showed the cause of the diplopia to be a large fluid cleft in the cortex of the lens. This formed an optical opacity dividing the lens into an upper and a lower segment. These acted independently, forming an upper and a lower image upon the retina.—Tscherning's Photometrical Glasses form the subject of a paper by W. A. Wille (Java). The object is to render possible a quantitative estimation of the power of adaptation to darkness. The apparatus consists of a series of plain dark glasses and a light-tight frame. The glasses are graduated thus: No. 1 lets through one-tenth of the light, No. 2 one-hundredth, No. 3 one-thousandth, and so on. The test is a candle flame at half a metre distance and the darkest glass through which this can be seen is the measure of the power of adaptation. It can be used as a measure of night blindness in any disease where this is a symptom. A differentiation must be made between the first or primary adaptation which takes place within 10 or 15 minutes, and the secondary which takes place within half to three-quarters of an hour.

# Reports and Analytical Records.

## GENASPRIN.

(GENATOSAN, LTD., LOUGHBOROUGH, LEICESTERSHIRE.)

Genasprin is an acetyl salicylic acid (aspirin) preparation put up in the form of tablets convenient for the treatment of headache, toothache, neuralgia, neuritis, rheumatism, also for influenza and all feverish conditions. The tablets when analysed were found to contain:—

| | |
|---|---|
| Acetyl salicylic acid .. .. .. | 80 per cent. |
| Starch .. .. .. .. .. | 20 ,, |
| Ash .. .. .. .. .. | Trace. |

Free salicylic acid was absent.

The weight of each tablet is 6·5 gr., equivalent to 5 gr. of pure acetyl salicylic acid.

## "MINTIES."

(JAMES STEDMAN-HENDERSON SWEETS, LTD., SWEETACRES, SYDNEY, AUSTRALIA.)

Minties are a hard opaque white sweet with a pleasant but not too pronounced flavour of peppermint. They dissolve slowly in the mouth, maintain the throat in a moist state, and do not adhere to the palate. Analysis shows that the sweets have been made from pure and wholesome materials. Each sweet is wrapped in waxed tissue paper which keeps it in a dry condition and free from extraneous contaminations.

Messrs. ALLEN & HANBURYS, Ltd., have prepared, and are now in a position to supply, liver in the form of a fine powder, which is palatable and readily taken by the most fastidious patient. Two ounces of this product are equal in activity to eight ounces of fresh liver. The powder is supplied in 1 oz., 2 oz., 4 oz., and 8 oz. bottles.

THE LANCET.

*LONDON: SATURDAY, DECEMBER 10, 1927.*

## THE SUBNORMAL SCHOOL CHILD.

*Principiis obsta:* withstand the beginnings; the remedy is prepared too late when, through long delays, diseases have become rooted. OVID'S maxim is illustrated nowhere so well as in the experience of the school medical service. For it is increasingly clear that the school doctor does not see the beginning of many constitutional diseases even in the 5-year-olds as they first enter on school life. Sir GEORGE NEWMAN in his annual report [1] tells us that from one-quarter to one-third of school entrants need medical attention; and with the majority of this group it is not merely a defect here and there that requires to be put right, it is too often a degenerative process, a delicacy of the whole system. And we now seem to have approached the position where this yearly recurring burden of disease shows no substantial change for the better. The variety and vagueness of the terms used to indicate the child in poor physical condition—malnourished, delicate, debilitated, subnormal, neuropathic, and so on—show the difficulty found in defining the picture, and, owing to wide personal variation, even among trained observers, in judging the presence and extent of this inferior metabolic and physiological development, the number of such children appears to vary widely in different localities. In Birmingham, for example, "delicate" children are assessed at 1·6 per 1000 of the school population, in Manchester at 17·2, in London at 24·5, and in Cumberland at 70·7, and even the higher figures probably represent but a fraction of the total number of school-children whose health is below normal. Detection and treatment of actual abnormality—e.g., of vision, teeth, or hearing, however necessary they may be, are hardly within the province of preventive medicine, which stands for a knowledge of the factors influencing the metabolic processes of growth and nutrition and an ability to recognise early departure from the normal or even the tendency to departure. Apart from congenital and acquired defects the pathological processes that affect children seem to be comparatively few in number, but the sensitiveness of the young child's nervous system is such as to make functional derangements extremely common, and it is the study of these which should reveal types of aberration or diathesis and so bring us in the end to a realisation of causal factors.

It may at present be impossible to differentiate exactly any one diathesis from another; this does not discourage Sir GEORGE NEWMAN, who believes that symptomatic study even now affords broad and helpful indications for practice. Overlapping and ill-defined as they are, he recognises two common types of ill-balanced children: (1) The catarrhal child, in whom there is a tendency towards hypertrophy of the lymphoid tissue and a special susceptibility to inflammatory exudation from mucous surfaces. This child may be either thin and irritable or fat and phlegmatic, he has a tendency to seborrhœa or urticaria, shows irregular furred areas on the tongue, eczematous patches or fissures on the skin, and catarrh of the mucous membranes. (2) The neuropathic child, who shows a lack in nervous regulation of the whole body with atony of the muscles, the weight of the body being balanced by stance rather than by muscular action. This child is pale and thin with round shoulders and excessive lumbar curve. His aspect at rest is listless and apathetic, but he is excitable, impressionable, and sensitive, liable to habit spasm, to headaches, and unexplained pyrexia. Inadequacy whether of nutritional processes or of muscular and nervous control are without question the precursors of much definite ill-health and invalidism, yet the clinical assessment of such children is a matter of great difficulty, for we have no reliable methods for estimating their physical condition by reference to a norm. The commonly employed ratio of weight to height varies in normal children so widely as to be unserviceable for the detection of subnormality in the individual. The child's general physical and mental condition can only be assessed after the closest observation by an experienced clinician of minor inequalities of growth and condition. Where any aberration from the normal is found Sir GEORGE NEWMAN makes the very practical suggestion that the child should be arraigned in the mind of the examiner under the following catechism:—

1. Is the debility due to *general nurtural neglect* in the child's home—insufficient sleep, inadequate and irregular meals, or vitiated atmosphere?

2. Is the debility the manifestation of some particular *disease* such as tuberculosis, rheumatism, or rickets?

3. Is it the *after-effect* of recent illness, measles, or broncho-pneumonia?

4. Is it an *early sign* of some oncoming disease?

5. Is it due primarily not to bodily disease, but to *neuropathic* or psychopathic disease?

It is along such lines that causal factors will be elicited and insight gained into the part played by heredity, postnatal disease and nurture, whether the latter be faulty in respect of insanitary surroundings, improper feeding, unhygienic living, insufficiency of sleep, or the comprehensive neglect of incompetent motherhood.

Whatever may be the final verdict on the causation of physical defect in childhood it is the earliest years preceding school-life, in which the child is being moulded within the limits of heredity, that bear the brunt of responsibility. It is at this time that the child is most susceptible to the influence of environment, favourable or the reverse, and infectious and infective diseases leave the gravest sequelæ. Medical officers who have carried out continuous supervision of children from prenatal existence to school age all agree that the incidence of defects in such supervised children is far less than in the comparable controls. Much of the school medical work is only necessary because mental and physical nurture began too late. It is both expedient and economical for us, Sir GEORGE NEWMAN writes, to do the most we can for the young child from birth to school age. To this end he advocates extension of the maternity and child welfare scheme and its coördination with the school medical service by opening and extending nursery schools, whose chief functions should be the physical and social welfare of the child, coupled with sensory and motor training along the broadest educational lines.

[1] The Health of the School Child. Annual Report of the Chief Medical Officer of the Board of Education for the Year 1926. H.M. Stationery Office. 1s. 6d.

## THE TOXÆMIAS OF PREGNANCY.

A CLINICAL and biochemical study of the toxæmias of pregnancy has appeared this week in the shape of a report [1] to the Medical Research Council from the Research Department of the Glasgow Royal Maternity and Women's Hospital by J. N. CRUICKSHANK, J. HEWITT, and K. L. COUPER. It is based on the record of 200 cases of albuminuria during the second half of pregnancy (excluding albuminuria due to infection of the urinary tract) in all of which a full clinical examination and study of the chemistry of the blood and urine was made. Forty-two other cases of normal pregnancy were investigated in the same way to serve as controls, and the general object was to check and evaluate the changes and reactions in the blood and urine which have been supposed to characterise these toxic states or to indicate disordered function. Though the increasing application of biochemical methods to clinical medicine has raised expectations of rapid advance in the early detection and differentiation of toxic states in pregnancy, such expectations are not realised in this laborious investigation. The results obtained are negative rather than positive, and many biochemical changes, whose diagnostic or prognostic value has been alleged, are shown to be unreliable guides. The report is particularly emphatic on reputed tests of hepatic function, and the statement is made that "not one of them seems to be of practical use in the diagnosis or prognosis of cases of toxæmia." Evidence of impairment of the function of the liver was found in some of the normal controls—more than is usually suspected in normal pregnancy—and there was apparently no correspondence in the abnormal cases between the results of the tests of hepatic function and the severity of the symptoms. This conclusion is of considerable clinical importance as some of these tests have been advocated as affording definite indications for the termination of pregnancy in cases of albuminuria.

As the research was approached from the clinical side the classification in use in the Glasgow Maternity Hospital was adopted, four groups being differentiated. These are albuminuria without toxic symptoms, albuminuria with toxic symptoms (pre-eclampsia), eclampsia, and nephritic toxæmia. Whilst the first three, from the clinical standpoint, seem to form a series in which the same type of toxæmia is seen in increasingly severe degree, a more definitely renal factor is considered to be present in the nephritic type. It is of practical importance to differentiate those cases in which the danger to be feared is immediate—i.e., eclamptic convulsions—from those in which the risk is the more remote one of permanent damage to the kidney; hence the portions of the report that will be found of particular interest to those engaged in obstetric practice are those analysing the symptoms in the various types, such as the correlation of the blood pressure with the degree of albuminuria. In the nephritic group the outstanding difference was a tendency to a slow fall from, or a maintenance of, the original level of the blood pressure in cases in which it was raised, and a similar behaviour of the albuminuria when the amount of albumin was high. Sometimes the degree of albuminuria was raised out of all proportion to the severity of other symptoms. Another feature of this group was that the amount of albumin in the urine was very variable, the variations being independent of the general level of albuminuria. In the other groups, on the other hand, the rise or fall in the amount of albumin was more or less continuous and did not show the same daily variations.

A special study was made of the power to excrete chlorides in view of HARDING and VAN WYCK's assertion that interference with the excretion of chlorides is a characteristic of the toxæmias of pregnancy. These writers also say that it is essential to withdraw all chlorides from the diet. As no ill-effects were observed when increasing doses of salt were given to patients who were recovering on a routine treatment, the conclusion is reached that the views of HARDING and VAN WYCK are incorrect. There are many other matters of interest in this report and not the least are those embodied in the second part of the appendix on the relative incidence of the various forms of toxæmia in a series of 23,630 cases admitted to the Glasgow Maternity Hospital in the ten years 1913–22.

[1] Special Report Series. No. 117. H.M. Stationery Office. 4s.

## THE GENERAL MEDICAL COUNCIL AND INCOME-TAX.

IT seems rather hard that the General Medical Council, a body created by statute for the performance of certain official functions in relation to the medical profession, should have to pay income-tax as though it were a mere commercial undertaking. Its statutory functions are the supervising, inspecting, and reporting upon medical studies and examinations, the preparation, revision, and issue of the British Pharmacopœia, the registration of qualified practitioners, and the judicial investigation of complaints against them. Towards the cost of performing these duties and the necessary secretariat and office expenses the General Medical Council receives income from registration fees, dividends on investments, and profits on the sale of publications. It had been contended for the Council that its statutory purpose is a charitable purpose—since it is for the benefit of the public that there should be an authoritative list of good doctors and an authoritative list of proper drugs—that the Council exists for that purpose only, and applies its income for that purpose only, and that it should therefore be exempt from income-tax as being a charity. Mr. Justice ROWLATT, however, held that the Council's funds are liable to income-tax assessment. He could see no signs of a trust for the improvement of the practice of medicine; the fact that Parliament has given the Council certain duties which are for the good of the public does not make the Council a charity. To be a charitable body a body must be a charity within the statute 43 Eliz. cap. 4, or must be analogous to bodies which are within that statute. Societies for the benefit of professions or trades are not societies with charitable objects within the meaning of the income-tax law. The General Medical Council, said the judge, is not exactly such a society; its object is to benefit the public rather than the profession; it is only because the public knows that it is protected from bad doctors that the good doctors are benefited. The Council is carrying out statutory duties for the benefit of the public undoubtedly, but Parliament imposes duties for the benefit of the public upon all sorts of bodies and these bodies cannot all be charities. In short, the Council stands outside the statute of Elizabeth and so must pay.

EXHIBITION AT MIDDLESEX HOSPITAL.—On Thursday, Dec. 15th, from 8.30 till 11 P.M., a scientific exhibition and demonstration will be held in the research departments and laboratories of the Middlesex Hospital and medical school.

# Annotations.

"Ne quid nimis."

## THE PREVENTION OF DIPHTHERIA.

IN London diphtheria has a higher incidence and mortality than in almost any other European capital, and there seems to be no reason for supposing that its ravages will diminish under present conditions. This fact makes it necessary for the responsible authorities to give careful consideration to the modern methods of controlling the disease. In a preface to Dr. Graham Forbes's recent report the Medical Research Council say that "the large body of evidence already available leaves no doubt that the disease and its often fatal consequences may now fairly be called avoidable"; whilst Sir George Newman, in his report to the Ministry of Health for 1925, stated that "as antitoxin has proved itself the best method of treatment, so immunisation appears to be our best prophylactic." It is not surprising, therefore, that the London County Council should have decided to re-examine the need for taking fresh measures to combat diphtheria, and it would be regrettable if incomplete accounts of their Health Committee's report should give rise to an impression that they are opposed to the active immunisation of school-children. This report was presented on Nov. 29th, and those who study its full text, as given in the *Medical Officer* for Dec. 3rd, will see that the Committee are by no means against Schick-testing and immunisation, though they feel that more evidence is wanted before these measures are applied to the school-children of London as a whole. They point out that there is as yet insufficient evidence to demonstrate their effect on the incidence of diphtheria in any given community in which the whole or the great majority of the child population has been protected; for though in New York City over 600,000 children were tested and over 400,000 immunised between 1916 and 1926, the total number of children of school age is about 1,650,000, and the fact that until this year the disease has been steadily diminishing cannot with certainty be attributed to the use of toxin-antitoxin. On the other hand, the Committee point out that "according to authoritative American observers, as a result of observation over periods ranging from three to six years, no child who received the full immunising course, and had given a Schick-negative reaction, subsequently contracted diphtheria."

Defence of the community against diphtheria does not imply protection of school-children alone, for, as the report remarks, the disease has its most fatal consequences on those who are less than 5 years old and have not yet come under the educational supervision of the London County Council. It is, moreover, the metropolitan boroughs, rather than the county authority, that are primarily responsible for measures to prevent infectious disease. In the City of Westminster and eight other boroughs, with a total population of a million and a half, preventive schemes are already in operation or are sanctioned. The extent to which these are used must depend largely on those who recommend immunisation to the public, as was emphasised at the meeting which we report on p. 1274, but the Council's Health Committee obviously believe that local education, propaganda, and experiment are what is needed at the present time. "It would appear desirable," they say, "that all public health bodies, both voluntary and public, including hospitals, provided they are persuaded as to the soundness of the measure, should assist the borough councils, as far as possible, by the dissemination of authoritative information on the subject."

Although it is considered premature for the County Council to introduce any measure of active immunisation among school-children until further experience is gained, there is apparently no objection to using the school organisation as a means of spreading information to parents who desire to be informed on the subject. In Holborn, Deptford, and Camberwell leaflets prepared by the borough medical officer of health are distributed through the schools, and these facilities will be extended to any other metropolitan boroughs which wish to adopt the same methods. The report recommends "that those parents who desire that their children should be protected by immunisation should be given every opportunity of satisfying their wishes." In conclusion, we may point out that the Council are responsible for a school population of well over 600,000 children. Before applying a comparatively novel method on so large a scale they are justified in awaiting evidence of the most definite kind, and although in the Medical Research Council's publication there is cumulative favourable testimony to the benefit of toxin-antitoxin in residential institutions and hospitals, yet the number of school-children immunised in this country—e.g., in Edinburgh and Aberdeen—has been relatively small. Until more is known of the incidence of the disease among the half million immunised children in New York City, no more than tentative deductions can be drawn about the effect of the new methods on the incidence and mortality in a large community.

## THE ACTION OF LIGHT ON THE EYE.

THE retinal currents have often been investigated since their discovery many years ago by F. Holmgren, of Upsala, and they are a valuable index of the activity of the retina. They are due, however, to processes taking place in the eye rather than in the optic nerve, and they do not tell us how the results of the retinal activity are transmitted to the brain. During the past two years E. D. Adrian, by recording action-currents with the capilliary electrometer and an amplifying system, has investigated the impulses occurring in various types of peripheral sense-organ, and has found that there is a close agreement in the behaviour of the different kinds of end-organ and in the impulse discharges set up by them. In experiments (with Rachel Matthews), which have recently been recorded,[1] he has broken new ground by using a special sense-organ, the eye of the conger-eel, and recording the discharge of impulses in the optic nerve, and its relation to the electric changes in the retina. The results of this research show that the activity of the optic nerve is in close agreement with that of sensory nerves, although the mechanism of the receptor apparatus of the eye is naturally far more complex than that of the peripheral sense-organs. By means of a capillary electrometer and valve amplifier, the action-currents of impulses in the optic nerve of the eel and frog were recorded when the retina was stimulated by light. It was found that the action-currents do not differ appreciably in time relations or in grouping from those in other sensory nerves, and their size is not affected by the strength of the stimulus (all-or-nothing relation). When the eye is illuminated, the discharge of impulses rises rapidly to a maximal frequency and then declines at first rapidly and then more slowly. If the illumination has lasted a second or more there is a renewed outburst of impulses when the light is turned off. Owing to the rapid decline in the discharge with steady illumination, a movement of light and shadow in the visual field is a much more effective stimulus than a steady pattern. When the retinal image does not exceed 1 mm. in diameter, the effects of an increase in the size of the image are the same as those of an increased intensity of illumination. Both the latent period and the maximum frequency of the discharge are determined approximately by the quantity of light in unit time, and the frequency is not directly proportional to the area of the retinal image. The relation between area and threshold intensity for the human eye is of the same kind. When the retinal current and the optic nerve discharge are compared, it is found that the initial

[1] Jour. of Physiology, Sept. 9th.

negative reflection of the retinal response occurs at a fixed interval before the beginning of the optic nerve discharge. This "retinal-nerve" interval has an average value of 0·1 second in the eel. The constant "retinal-nerve" interval is probably due to time lost in conduction through the synapses of the retina. When the light is turned off, there is a constant interval between the beginning of the positive retinal response and the "off" discharge in the optic nerve. The parallel effects of an increase of area and an increase of intensity can be explained by assuming a spread of the excitatory process into regions surrounding the illuminated area. This agrees with the fact that it is impossible to confine the discharge to a single fibre of the optic nerve by limiting the size of the image. In a 2–4 lb. conger-eel the optic nerve is 1½–2 cm. long and about 0·5 mm. in diameter. There are large nerve-fibres in the middle and small fibres round the periphery. In a section with a total of 8000 nerve-fibres there are about 6000 small fibres and 2000 large ones. The average number of fibres in the optic nerve of the conger is about 10,000. Owing to the small number of fibres in the optic nerve of the eel and the large retinal area connected with one ganglionic cell, a spread of the excitatory process is not ruled out by the relatively low frequency of the discharge.

## THE STATUS OF MENTAL NURSES.

FORTY years ago the asylum attendant was so little removed from the old time "keeper" that she was ignored by the nursing profession and classed with prison warders and policemen. Largely owing to the efforts of the Medico-Psychological Association the status of mental nurses improved, until in the Act of 1919 they were recognised as nurses and included in a supplementary register. The Association sets an examination in mental nursing and awards a certificate of proficiency to successful candidates, and in the great majority of mental hospitals nurses are expected to obtain this. The General Nursing Council, however, sets another examination for mental nurses, and will not admit to the State registers holders of the M.P.A. certificate alone. The G.N.C. examination has been criticised as being too costly and setting too high a standard in general nursing for those who only wish to register as mental nurses. On the other hand, under the Association's syllabus, the training of the mental nurse has been considered deficient in practical bedside nursing. The fact remains that very few nurses in county and city mental hospitals sit for the G.N.C. examination, and their medical superintendents and committees are fully satisfied if they hold the M.P.A. certificate. There is, however, no guarantee that this will continue. During the last three years 3509 mental nurses obtained the Association's certificate, yet only 126 were admitted to the State register. The anomalous situation that has arisen was the subject of discussion at the quarterly meeting of the Medico-Psychological Association on Nov. 17th, when Prof. G. M. Robertson proposed as a resolution:—

"Arising out of the Report of the Royal Commission on Lunacy and Mental Disorders (p. 107, para. 102) and in accordance with the recommendation of the report of the Parliamentary Committee of Enquiry into Nursing, it is resolved that the Royal Medico-Psychological Association makes every endeavour, by negotiation or, failing that, by obtaining the insertion of a provision in any new Lunacy Bill, to secure that the possession of the Certificate of Proficiency in Mental Nursing of the Association entitles the holders thereof (both present and future) to be registered, on payment of the fees, in the Mental Section of the Registers of Nurses of the General Nursing Councils, and to enjoy all the privileges of registered mental nurses; this to be without prejudice to any examination in mental nursing which the General Nursing Councils may think fit to hold, and to be subject in the future to such supervision and standard as the General Nursing Councils may think fit to impose, as in the analogous case of the General Medical Council and medical professional examinations."

While disclaiming any wish to interfere with the prerogatives of the General Nursing Council, Prof. Robertson said that he felt it was not wise that nurses holding the M.P.A. certificate should be excluded from the State registers. A joint Advisory Council of the M.P.A. and the Mental Nursing Committee of the G.N.C. ensures practical identity in training and standards between the two bodies, and, as Prof. Robertson claimed, mental nursing demands quite as fine (if not finer) mental and moral qualities as general hospital nursing. He was sure that the Association had no intention of giving up its certificate, which he characterised as the greatest piece of work done for the care of the insane during the last 50 years. The policy of the Association, said Lieut.-Colonel J. R. Lord in supporting the resolution, was to coöperate with the General Nursing Councils in the nomination of examiners and the establishment of the syllabus for their mental nursing certificate, and to encourage all mental nurses to secure registration. The brunt of their exclusion from the register, he continued, fell on the private mental nurses who were kept out of all the principal nursing agencies and coöperations. Under the new Bill for the registration of nursing homes they will also be excluded from employment in these homes. In Colonel Lord's opinion the Association owed it to mental nurses that their proficiency certificate should carry with it admission to the State registers, and since much of the work was voluntary it could conduct the examinations more economically than the State could do. He went so far as to declare that common sense demanded the acceptance of the coöperation offered by the Association to the General Nursing Council. Several speakers in the ensuing discussion felt that Prof. Robertson's proposal offered the only reasonable way out of a difficult position. Opposition, led by Dr. J. K. Henderson and Dr. Wolseley Lewis, was based on a difference of opinion as to which method would best increase the status and advance the interests of the mental nurse. Dr. Henderson preferred the system advanced by the G.N.C., and called on the Association to put aside the sentiment attaching to its past admirable work and to march loyally with the times. Dr. Lewis said that 63 per cent. of the candidates from his hospital were successful in the first examination of the G.N.C. Dr. Bedford Pierce took the point of view that the nurses were to be compared with the growing child; in the past they had been under the tutelage of the Association, but the time had come when they might be left to go their own way, and it was not seemly for the Association to legislate for them without consulting them. Prof. Robertson, in replying, agreed that nurses should have better representation on the Educational Committee of the Medico-Psychological Association. He felt, however, that mental nurses were better off under the control of doctors than of their fellow-nurses, who still tended to despise them. He carried his resolution by a large majority, and the future therefore hangs on the reply of the General Nursing Council to the offer of coöperation made to them.

## HEPATIC DISTURBANCE AND MIGRAINE.

WHEN all the well-known causes of migraine, of which eyestrain may be cited as the commonest, have been excluded, there remains a large group of sufferers in whom the pathogenesis of the disease is obscure. Evidence has accumulated in recent years showing that in many such the failure of the liver to carry out its normal detoxicating functions may be the explanation of the disorder. We recently published a paper by Dr. C. H. Rook in which he reported[1] the favourable results of treatment in a number of cases where this hypothesis had served as the basis for his therapy, and a recent communication by Dr. J. S. Diamond lends further support to the theory.[2] Working on the 35 cases in whom

[1] THE LANCET, 1927, i., 705.
[2] Amer. Jour. Med. Sci., 1927, clxxiv., 695.

other causes of migraine had been eliminated, he found evidence of disturbed liver function in more than 90 per cent. The tests employed were the van den Bergh reaction and estimation of the urobilinogen of the urine. The cases were divided into three groups: in the first, there was hemicranial headache with digestive disturbance; in the second group of 15 cases this headache was associated with nausea and vomiting, the classical "bilious attacks"; in the remaining eight cases the abdominal symptoms were predominant and often severe, simulating organic disease of the biliary tract, although neither cholecystography nor laparotomy in five cases revealed any evidence of organic disease. The predominance of females over males and the presence of a family history of migraine were apparent in the whole series in typical manner. In 91 per cent. of the whole series the van den Bergh reaction showed a latent icterus with a bilirubin retention of from 1 to 5 units, the normal being 0·8 units or less. The urobilinogen was similarly increased from 1–35 up to 1–200 in the most extreme cases. It is suggested that this evidence points strongly to hepatic dysfunction. The explanation put forward by Diamond is that the failure of the liver leads to the passage of toxic putrefactive substances from the portal into the general circulation, by means of which vascular changes are produced in the cerebrum or other viscera, all possibly of an anaphylactic nature. The treatment deduced is the withdrawal of animal proteins and the adoption of a strict lacto-vegetarian diet, lacto-dextrin and various sour milks being added with a view to changing the intestinal flora. The occasional use of cholagogues is advocated as an aid to biliary secretion. The favourable results reported by Rook in the paper to which reference has already been made give a hint that drastic dietetic measures are not always wise; Diamond's observations on bilirubin retention, however, may indicate that we are approaching the solution of a problem of great practical importance, even if migraine is sometimes classed amongst the minor maladies by those who do not suffer from it.

## POST-VACCINAL ENCEPHALITIS IN HOLLAND.

IN a recent issue of the leading Dutch medical journal Dr. J. T. Terburgh,[1] the medical officer of health at The Hague, deals with the occurrence in Holland of encephalitis after vaccination, to which we have drawn attention on previous occasions.[2] Since his previous communication to the same journal, made in collaboration with Dr. F. S. van Bouwdyk Bastiaanse and Dr. Bijl, Dr. Terburgh has collected a total of 124 cases of "post-vaccinal encephalitis" which have occurred in Holland. He remarks that though this number is regrettably high, the total is small in view of the large number of vaccinations performed in the country. The first of the 124 cases occurred in June, 1923. During 1924, up to August 1st, four more cases were reported, two of which had been vaccinated in March and one in July, while the date of the fourth child's vaccination was not known. Of these five cases, two died. In the following triennium, extending from August 1st, 1924, to August 1st, 1927, there were 119 cases of encephalitis following vaccination in Holland, with 36 deaths. The number of cases in each of these years was 38, 29, and 52, with 15, 8, and 13 deaths respectively. There was thus a fall in the mortality from 40 per cent. to 25 per cent., the average mortality of all the cases being 31 per cent. An explanation of this fall in the mortality during the last three years is that the medical profession began to pay more attention to encephalitis occurring after vaccination, so that more mild cases were notified to the public health authorities. There was a considerable variation in the total number of cases notified each month. While March headed the list with 44 cases, not a single case was notified in November and December, although 70,164 vaccinations were performed in these two months, and there was a considerable irregularity in the number of cases notified in the other months during the triennium in question. It is noteworthy that a much larger proportion of cases occurred in country districts than in large towns. Thus in districts with less than 5000 inhabitants the incidence was three times greater (32 cases per million inhabitants) than in those with more than 100,000 (11 per million). The number of cases in the various Dutch provinces also showed great variations. While, for instance, the province of Zeeland had 52 cases per million inhabitants, the province of Limburg had only two, although more vaccinations were performed in Limburg than in Zeeland during 1925. A table of the encephalitis cases at various ages shows that only one case occurred in each of the first two years of life, as compared with seven in the third year, 34 in the fourth, 27 in the fifth, 37 in the sixth, 15 in the seventh, and 1 between the seventh and twelfth, while the age of one patient was unstated. Another table shows that cases occurred in only 73 of the 1080 odd urban and rural districts in Holland, and that in 49 of the 73 only a single case was notified as compared with 24 in which there were more than one. The vaccine lymph employed in these cases had been prepared at Amsterdam, Rotterdam, and Groningen respectively. 101 cases occurred after use of the Amsterdam lymph, 16 after the Rotterdam lymph, and 6 after the Groningen lymph. This is equivalent to one case for every 6604, 9257, and 5585 vaccinations respectively. The Amsterdam and Groningen lymph, therefore, seems to have been associated with more cases than the Rotterdam lymph. The reaction on the arm varied considerably in the children affected. In only one instance was it severe, while in many cases a normal or slight reaction was reported. Dr. Terburgh does not believe that post-vaccinal encephalitis is caused by the vaccine virus itself or by organisms that gain entrance to the body simultaneously with the vaccine virus; he inclines to the view, which is also held by Prof. H. Aldershoff, director of the Dutch Serological Institute at Utrecht, that the process of vaccination rouses into activity an unknown dormant virus which is the cause of the encephalitis.

[1] Nederlandsch Tijdschrift voor Geneeskunde, Oct. 29th, 1927, p. 1810.

[2] See THE LANCET, 1926, ii., 504 and 764.

## MULE-SPINNERS' CANCER.

WE publish in this number an extract from a report, drawn up by Dr. J. Robertson of Darwen for his health committee, in which he deals with cancer in mule-spinners. Dr. Robertson has conducted a careful inquiry into this condition and has recently published a detailed account of his results.[1] He comes to the conclusion that, contrary to the findings of the Departmental Committee which was appointed to consider this condition, scrotal epithelioma in spinners is not caused by oil sprayed from the working mule and that the faller shaft does not take any part in its causation. He finds the causative factors in a dirty scrotum and mechanical friction from the hard cloth of the overalls, the effect of this friction possibly being aggravated by the dye of the overalls and by the use of an inelastic brace. The factors incriminated by Dr. Robertson are however hypothetical, while certain kinds of oil have been shown to be possessed of carcinogenic action, not only for mice but also for men. The careful observations of Dr. Alex. Scott on the occupation dermatoses of paraffin workers in the Scottish shale oil industry[2] afford abundant evidence that certain oils produce cancer of the skin in man, and that the skin of the scrotum is particularly susceptible to this particular agent. Dr. Scott's observations clearly show that for this form of occupational cancer there are certain definite

[1] Jour. of Industrial Hygiene, 1927, ix., 217.

[2] Eighth Scientific Report of the Imperial Cancer Research Fund, and THE LANCET, 1923, ii., 1370.

sites of election where carcinomatous changes occur most frequently, while there are certain areas of skin which seem to be practically immune against the carcinogenic action of these oils. Of the susceptible sites the scrotum is one, the arm, forearm, and the back of the hands is another, while the leg is remarkably resistant. Obviously this site incidence cannot be explained by friction, nor does it depend entirely on the amount of the carcinogenic agent in play. Dr. Robertson's point, that the oil is not carcinogenic because it does not produce cancer of the feet in mule-spinners although it undoubtedly comes into contact with them, seems to be made without due regard to Dr. Scott's observations. Even though it may be true that in mule-spinners the oil is not sprayed directly on the overalls in the region of the scrotum, it does not follow that no oil reaches the scrotum. The practical importance of this problem is to be found in the legal question whether cancer in mule-spinners is an occupational disease requiring compensation or whether it is due rather to the personal habits of the operator. In view of the outstanding facts that cotton-spinners are exposed to the action of an agent of proved carcinogenic power and that the scrotum is the site of election for this agent, it is difficult to see how the Departmental Committee could have arrived at any other conclusion than that "in the absence of exposure to mineral oils there would be no mule-spinners' cancer."

## CINEMATOGRAPHY OF INTESTINAL MOVEMENT.

SINCE Grützner in 1898 introduced mercury into the intestines of animals and observed it with the Rontgen rays, many attempts have been made to apply serial photography to the study of intestinal movements. A recent observer, W. C. Alvarez, of San Francisco, has tried to obtain motion pictures of gastric and intestinal peristalsis. As so many loops of intestine were working at the same time, he found it hard to record what was taking place until the loops were marked by black threads, which enabled their individual movements to be followed. The films showed a series of rhythmic segmental movements taking place in the small intestine, corresponding with the churning movements (*Pendelbewegung* of Ludwig). Sometimes a rush movement takes place in the coils, the upper coils trying to hurry the food down and the lower coils pushing it back (*Rollbewegung* of Nothnagel). It surges backwards and forwards, and finally passes along. A striking phenomenon said to be observed is the invagination of one portion of bowel into another. A coil may be sucked in, then a contraction forms below it and pushes the invaginated coil out again. It is doubtful, however, if this can be regarded as a normal process. The conditions of observation, with open abdomen and exposed intestines, under anæsthesia, are by no means natural, and these invaginations may be compared with the agonal intussusceptions frequently found post mortem, which take place upwards or downwards. Cannon's work, using trained unanæsthetised cats and observing loops of bowel with X rays after ingestion of bismuth meals, probably approaches most closely to the normal. He showed that the activity most common in the small intestine is the segmentation of the food in a coil of intestine, rhythmically repeated and followed by a peristaltic movement of the mass to another coil where segmentation again takes place. He also found the usual movement in the proximal part of the colon to be in antiperistaltic waves driving the food back towards the ileocæcal valve which is usually competent to hold solid or semi-solid food from regurgitation into the small bowel. These antiperistaltic waves are interrupted at intervals by a strong general contraction passing along the cæcum and ascending colon; a moment later antiperistaltic waves begin again. The application of serial photography to man has had to wait for the improvement of apparatus and technical methods; but it has been used by some workers for the past few years, at first for research and later in routine examination to ascertain the presence of arrested peristalsis or the constancy of a filling defect in stomach and bowel. A series of six to ten exposures at intervals of one second may be made while the patient holds the breath, and the superimposed films enable small rigid areas to be easily differentiated from the remaining mobile wall of the viscus. A warning may be offered, however, that these elaborations of method are no substitute for the trained observer. In the duodenum, for instance, a few films taken at various angles are better for diagnosis than a series in the anterior view; while it is still better to take the serial film at an angle showing the lesion in profile.

## ANÆSTHESIA IN GOITRE SURGERY.

THE merits of different methods of anæsthesia for goitre operations were discussed at a recent meeting of the Section of Anæsthetics of the Royal Society of Medicine. Mr. T. P. Dunhill gave a broad-minded review of the question and showed that several different methods might receive equal support in most cases. His own predilection appeared to be for endotracheal insufflation in cases in which there was obstructive dyspnœa, and for local analgesia when the patient was very ill. He described one exceptional case in which he was satisfied that chloroform was the most desirable anæsthetic to employ and had used it with success. In the vast majority of instances, however, he believed that chloroform was best avoided in goitre surgery and in this opinion subsequent speakers concurred. Sir James Berry favoured light anæsthesia with open ether for most cases, and laid stress on the importance of the anæsthetist being familiar with the anatomical peculiarities of the trachea in the deformities brought about by various kinds of goitre. The inadvisability of starting the anæsthetic anywhere but on the operating table was pointed out by a later speaker, but this is a point which Sir James Berry had emphasised at a previous meeting when he said that before a goitre operation the administration of the anæsthetic should never be begun until the surgeon is absolutely ready to operate. This is, of course, because it is never certain that a slight or even an indiscernible dyspnœa may not with the induction of anæsthesia rapidly become so grave that immediate operation is essential if respiration is to continue. Mr. Dunhill had previously stated that every goitre patient should be X rayed before operation and this precaution will reveal those post-sternal tumours which have in the past often been responsible for the sudden unexpected onset of dyspnœa in early anæsthesia. The goitre patient is one for whom the anæsthetic should always be given by a specially skilled person, and this is more particularly true of the exophthalmic goitre patient. These subjects, when a local analgesic is not suitable or desired, provide some of the most trying problems which the surgeon and anæsthetist are ever called upon to solve. The psychical and the cardiac frailties of the patient render her a peculiarly awkward individual both for the induction and maintenance of anæsthesia and for safe and thorough operative measures.

## WEIGHT AND SIZE OF BRAIN.

THE Vienna school is responsible for much detailed work on the comparative weight of the human brain according to sex, age, and other factors. It was found, for instance, that the brain of the suicide exceeded the average by 100 g. Many years, however, have gone since it was thought that the weight and size of the brain could be taken as an index of the intelligence of its owner during life. Anyone still holding the primitive view was bound to find his opinion modified on consideration of the high association areas of Flechsig, those regions which were shown by him to be the last to myelinate. The idea of association puts the mere mass of the cerebral elements in a secondary position, and makes of much greater account the

intelligent use of a relatively smaller quantity by combination and association between its parts. It is of interest in this connexion to recall the fact that the brain of Neanderthal man was probably larger than many modern brains, but that the primitive human brain was weak in those very regions which, in us, are the last to myelinate. There can be little doubt, from any point of view, that Neanderthal man possessed a very intelligent brain, but it was lacking in those wider horizons which opened to his successors with the further development of their higher association mechanisms. Recognising this fact, that quality rather than quantity is the important matter, the anatomist is nevertheless right in recording the weight and external appearance of such brains as come within his observation; this, in many cases, includes nearly all that he can observe on his dead material, although he may assume many other things from his estimates of proportionate developments, and so on. Thus such measurements as Dr. Bernard Hollander gives, in his letter in our present issue, are quite in order as formal records, made without any suggestion of close correlation between size and mental capacity. It must be admitted that the value, whatever it may be, of such records is impaired in many cases, as Dr. Hollander says, by untoward inclusions, to guard against which calls for care in the future. When he states that it is time we began to learn something about the varied functions of the parts of the brain already mapped out by anatomical research, it is only fair to point out that this is being done. The attack is being carried on directly and indirectly, largely by undermining from below. Anatomical criteria cannot be satisfied by mere psychological speculation, but demand structural and experimental correlation. Caution would seem justifiable in placing the seat of the higher intellectual functions in any particular region of the brain, for it appears reasonable to expect that all parts would have to contribute if association is to be at its best. The intellectual impairment which accompanies the Wernicke type of aphasia, for instance, without any frontal lesion, is an example of such an interruption. The investigation is, naturally, of highly complex and difficult sort, but in time the various anatomical divisions of the brain will doubtless be fitted with some, if not all, of their corresponding functions.

## LEISHMANIA DONOVANI IN THE SKIN.

AMONG lower animals a variety of Chinese field mouse, *Cricetulus griseus*, has alone been found susceptible to direct inoculation with kala-azar. In recent experiments [1] on this hamster Dr. C. R. Cash and Dr. C. H. Hu, of Peking Union Medical College, showed that it is the cells of the reticulo-endothelial system that contain the kala-azar parasites. These cells filled with Leishman-Donovan bodies formed the characteristic lesions of the disease. The clasmocytes (phagocytic wandering cells) of the skin, subcutaneous and areolar tissues, were much increased in number and filled with kala-azar bodies; they formed a thick layer of heavily infected tissues covering the animal, though on the external surface of the body, after removal of hair, no changes could be seen. This finding led these investigators to renewed search of necropsy material from their human cases of kala-azar, in none of which had studies of the skin been made, and the results were interesting and important.[2] From one body a small piece of skin and from another some subcutaneous tissue was recovered, though it could not be ascertained what had been the appearance of the skin, or from what part of the body the bits had been derived. In both bodies typical lesions of kala-azar had been found throughout the viscera, and in the rescued necropsy fragments sections revealed many clasmocytes filled with Leishman-Donovan bodies, exactly as they had been found in all the inoculated hamsters; that is, all levels of skin below the corium contained the infected cells, which were collected in masses about sweat glands and arterioles and scattered throughout the corium and into the papillæ just below the epidermis. The lesions were qualitatively like those seen in the oriental sore of *Leishmania tropica*, though less extensive, and a closer relationship between the two diseases is thus established. Though the skin in kala-azar shows areas of dark pigmentation, no characteristic changes have been described, but the skin in these patients has not yet been well studied histologically. The perivascular arrangement, in the skin, of the cells containing Leishman-Donovan bodies makes it very likely that a blood-sucking insect would imbibe the parasites from patients with kala-azar, and the question is now raised whether the Leishman-Donovan bodies described in the peripheral blood really existed there, or only escaped through the wound in the skin along with the blood. In the hamsters some of the parasites probably existed in the peripheral blood, for the few seen in blood films were usually within polymorphonuclear neutrophilic leucocytes. (The record of a case of congenital human kala-azar by Dr. G. C. Low and Dr. W. E. Cooke[3] makes the presence of Leishman-Donovan bodies in the circulating blood highly probable.) It is of immediate practical importance that, if these skin lesions are present constantly in kala-azar, histological examination of the skin may be used as a diagnostic procedure instead of, or supplementary to, punctures of liver and spleen.

[1] Proc. Soc. Exper. Biol. and Med., 1927, xxiv., No. 6.
[2] Jour. Amer. Med. Assoc., Nov. 5th, 1927.

## AN INDUSTRIAL MUSEUM.

THE Home Office is to be congratulated upon the organisation of a museum—the first of its kind in this country—which is designed to show the methods, arrangements, and appliances which have been devised to promote the safety, health, and welfare of industrial workers in the manufacturing and other industries coming within the sphere of its administration. Situated at Horseferry-road, Westminster, it occupies a floor space of 10,000 square feet and embraces a Safety Section, consisting of machines and appliances, as they would be installed or used in a factory, photographs and models; a Health Section; and a Welfare Section. In many cases the safety devices are contrasted with machinery and apparatus which are dangerous to the worker. In the first section ingenious devices are shown by which the machines are automatically stopped when the limbs of the worker are in danger of injury, or by which the machine refuses to function unless it is worked in a proper manner, or by which the worker's hands are automatically thrown away from the danger area on an emergency. There are other devices for enclosing the dangerous parts of the machine in cages, or within shields, so that the workers cannot come into contact with such parts, and the fertility displayed by the inventors is surprising. In the sections devoted to the preservation and conservation of health industrial diseases come first, and the exhibit includes photographs in illustration of lead poisoning, silicosis, and the various dermatoses, including epitheliomatous ulceration, to which workmen in special directions are liable. Charts also illustrate the incidence of disease in various industries over a period of years, and models show the lesions produced by disease, while there are micro-photographs of lung lesions produced by inhaling industrial dust, and an important series of X ray pictures of the lung. Anthrax and its dangers are depicted by an interesting exhibit prepared by the director of the Home Office Anthrax Disinfecting Station at Liverpool, comparing disinfected and undisinfected wools at various stages of the manufacturing process. The advantages of proper lighting and efficient ventilation are demonstrated by much ingenious apparatus, and ample space is devoted to welfare work. There are model rest-rooms, canteens, and examples of how first-aid should be made available and ambulances be fitted up. The furniture,

[3] THE LANCET, 1926, ii., 1209.

utensils, and appliances for the proper equipment of all these can be seen, as well as examples of protective clothing.

It is intended to keep the museum up to date, so that it shall always exhibit the latest and best methods of promoting the safety and health of industrial workers. Last week the King and Queen paid a visit to the museum, which is now open to the public in the mornings of week-days and on Saturday afternoons, while at other times parties of visitors can see the museum by arrangement. While serving as a useful means of education to employers, employed, inspectors of factories, and welfare workers, and while helping designers to keep in touch with modern machinery, the museum will also give valuable information to medical practitioners and students, brought together in a compact form. Diffusion of knowledge of the highest practical value should follow this wise movement of the Home Office.

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A LUNCHEON was held at the Savoy Hotel on Tuesday, Nov. 29th, the occasion being to make a public appeal for the funds of the Hampstead General Hospital. The hon. treasurer of the hospital, Mr. Howard Figgis, was in the chair, and the appeal was definitely stated to be for £20,000, a large proportion being for debts incurred. A letter from A. A. Milne was circulated, pleading wittily for small as well as for large subscriptions, and setting out the interesting point that the out-patient department of the hospital, which now stands in Bayham-street, Camden Town, is on the site where Charles Dickens lived as a boy, when his father first came to London with Mr. Micawber's expectancy that "something would turn up." The guests were also furnished with a statement that the hospital had treated nearly 2000 in-patients in the past 12 months, and that in addition to the payment of its debts, another operating theatre was urgently required as well as an emergency block for cases needing immediate surgical treatment. Thus an increase in annual subscriptions to the amount of £5000 was called for as well as a capital sum. The Bishop of Willesden supported the Chairman's appeal, and was followed by Mr. Bransby Williams, the owner of part of the premises in Bayham-street where Dickens had occupied an attic. Mr. Williams spoke of his intention to give one-man shows in aid of the appeal, and in particular of hoping to arrange an all-star programme of a Dickens play. No one need be reminded that of all English men of letters Dickens would have been the readiest himself to support the appeal. Of the 80,000 out-patients who attended the Hampstead General Hospital last year we may be certain that a large number in that poor and populous neighbourhood belonged to the type whose pathetic struggles and persistent courage and good humour made such splendid material for his romances.

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EPSOM COLLEGE.—The Council of the College is about to award a St. Anne's Home Scholarship of £52 a year to the orphan daughter of a medical man who was in independent practice in England or Wales for not less than five years. Candidates must be fully 7 years of age and not over 12 years on May 1st, 1928. Forms of application can be obtained from the Secretary at the office of the College, 49, Bedford-square, London, W.C. 1.

OFFENSIVE GASES IN INDUSTRY.—By the Public Health (Smoke Abatement) Act, 1926, power is given to the Minister of Health to make orders extending the provisions of the Alkali, &c., Works Regulation Act, 1906. A draft order has been prepared extending the list of noxious or offensive gases mentioned in that Act, and extending the list of scheduled works requiring registration. Copies of this order may be seen at the offices of the Ministry of Health, Whitehall, London, S.W. 1, or may be obtained from H.M. Stationery Office, at Adastral House, Kingsway, London, W.C. 2; at York-street, Manchester; or at 1, St. Andrew's-crescent, Cardiff. A public inquiry will be held into the subject matter of the draft order by Dr. T. L. Bailey, at the offices of the Ministry of Health, Whitehall, London, S.W. 1, on Wednesday, Dec. 14th, at 11 A.M. Any person interested may attend and give evidence.

# Modern Technique in Treatment.

*A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.*

## CCLIII.

## TREATMENT OF CONGENITAL STENOSIS OF THE URINARY MEATUS.

(PIN-HOLE MEATUS).

THIS condition receives little notice either in the text-books or teaching of surgery, but it is quite familiar to those whose work is largely with children, and is indeed the most frequent cause of dysuria in male infants. It is important to be able to recognise and treat pin-hole meatus because it is often overlooked and the troublesome or even dangerous symptoms which it occasions are wrongly attributed to other causes. Treatment is nearly always successful and should be undertaken at the earliest possible moment.

### *Ætiology.*

The stenosis is restricted to the distal extremity of the urethra and rarely extends for more than a quarter of an inch proximally. It is found in babies a few days old, though diagnosis is commoner in the second, third, and fourth years of life. Congenital stenosis of the meatus is a particularly accurate name and exactly describes the condition, though it is difficult to account for it any more satisfactorily than we can explain the occurrence of other congenital anomalies such as cleft-palate and imperforate anus. Associated congenital defects are rare, but I have seen one patient in whom a double ureter and pin-hole meatus coexisted. The proximal part of the urethra is developed from the urogenital sinus and is apparently never involved. The distal part which traverses the glans penis is formed by the canalisation of a plug of epithelium. Pin-hole meatus is due to an arrest of this process before a channel of adequate size has been formed, but we cannot tell what determines this irregular development.

### *Signs and Symptoms.*

The signs and symptoms are due, in the first place, directly to interference with the outflow of urine, and in the second place to the urinary infection which often follows it. Dysuria is the commonest symptom, and the child's mother will almost always describe straining at micturition, a small and intermittent stream, and frequent crying due to pain or the anticipation of pain. In older children there is often incontinence of urine or so-called frequency of micturition. The bladder becomes distended and the child is unable or unwilling to pass urine until an overflow incontinence is established and a little urine dribbles away at a time. If such patients are examined they will be found to have a bladder which is distended sometimes to the umbilicus. Acute retention may occur and the patient may pass nothing for 24 hours. This condition will gradually progress into the overflow incontinence described above. Stagnation of urine in the bladder is often followed by infection, and some of these children will arrive with a diagnosis of pyuria though the cause of the pyuria may have escaped detection. Another important group of symptoms is due to an ulcer at the meatus. It is surprising how often the parent will describe these "water-blisters" which form at the urethral orifice, and "then break to form a sore." This sore or ulcer frequently bleeds, so that hæmaturia may be the first complaint. This triad of signs (vesicle, ulcer, and bleeding) is probably caused by the irritation of a drop of infected urine which is retained proximal to the point of stenosis. Possibly the child's efforts to relieve pain and obstruction by frequent handling of the penis are contributing factors. It will be seen that the signs and symptoms are protean, and it is small wonder that a correct diagnosis is often delayed.

*Diagnosis.*

The chief difficulty in diagnosing pin-hole meatus is to remember that such a condition exists. It is like scurvy and retropharyngeal abscess which usually offer no obstacle to diagnosis, except the all-sufficient one that other diseases which give a rather similar picture spring first to our minds. If poliomyelitis and osteomyelitis did not exist we should not forget scurvy, and if phimosis never occurred we should more often think of pin-hole meatus. There is a tendency for some doctors to think that circumcision is the appropriate treatment for almost any disease or abnormality of the baby's penis, and this operation is often performed without the careful preliminary examination that such patients deserve. It must be emphasised that phimosis per se rarely, if ever, obstructs the outflow of urine and, in the absence of balanitis and paraphimosis, circumcision is very unlikely to relieve dysuria.

A simple examination will reveal the presence of pin-hole meatus, but it may often be suspected before the examination is made. The most common complaint is dysuria, and this includes all forms of straining before, during, and after micturition. A story of urethral bleeding, blisters, sores, bed-wetting, and every kind of incontinence of urine or frequency of micturition in a small boy should lead to a careful examination of the meatus before other causes are considered. In some children a long or tight foreskin completely prevents this examination, and circumcision should then be advised without hesitation. The practice of stretching the foreskin by forceps is not a satisfactory substitute for circumcision, because it often damages the delicate tissues and fibrosis may follow. It is wise to warn the parents that circumcision may have to be followed by a second small operation if there is any suspicion of stenosis and the meatus is invisible. If there is a clear view of the meatus it is usually only necessary to look at it to decide if stenosis is present. It is difficult to define the size of the normal orifice in exact terms, but the stenosed meatus is generally so like a pin-hole that it is easy to make the diagnosis. If there is real doubt whether diminution exceeds normal limits an attempt may be made to pass a sterile probe, but experience makes this rarely necessary. The margin of a normal meatus may partially adhere and simulate a minute orifice, but this pitfall is avoided if the meatus is compressed between the finger and thumb in an antero-posterior direction (i.e., in the line of the orifice) in every suspected case. This simple test will always show the real size of the orifice. Additional information may be gained by watching the stream of urine; its calibre must be observed, as well as any hesitancy or interruption in the act. There may also be incomplete emptying of the bladder, this being estimated by the eye and hand rather than by an instrument.

*Differential Diagnosis.*

The differential diagnosis ought to be easy because there is no other condition which gives quite the same picture. Over-attention to one sign or symptom may, however, cause mistakes if examination of the urinary meatus is omitted. Hæmaturia is a common complaint in pin-hole meatus and the parents often do not know that the blood is coming from a meatal ulcer. Hæmaturia from a point higher in the urinary tract (e.g., nephritis, calculus, oxaluria, hæmophilia, tuberculosis, or new growth) should not be confused with it. Enuresis is of many kinds and due to many causes, but it is time enough to fall back on belladonna and good advice when a careful examination has disclosed no local lesion and the urine is normal. It is well to remember that spina bifida occulta and a stone in the urethra can produce some of the same symptoms as pin-hole meatus. Dermatitis and other superficial lesions of the penis should be recognised. It has been recently suggested [1] that dysuria in male infants is often due to a particular kind of dermatitis. It was shown that in certain circumstances urine, which is normal when passed, becomes infected from the alimentary canal by a bacillus which liberates ammonia from the urine-soaked napkin. This ammonia fomentation induces a dermatitis of the napkin area, and this in turn causes dysuria. This condition seems uncommon in England, and one suspects that a little cleanliness is enough to avoid it. Epispadias and hypospadias are easily recognised and phimosis has already been considered.

[1] THE LANCET, Sept. 24th, p. 639.

*Complications.*

The condition, if untreated, produces a series of back-pressure phenomena which may ultimately involve the pelves of the kidneys. Infection of the urinary tract readily occurs, and it seems possible that hydro- and pyo-nephrosis in children may be sometimes the direct outcome of congenital stenosis of the urinary meatus, though there is little evidence on this point.

*Treatment.*

Treatment is fortunately simple, but demands careful attention to detail if recurrence is to be avoided. Instrumental dilatation is unsuccessful because it is followed by cicatrisation; it should never be performed without first carrying out the little plastic operation which will be described. Circumcision is an essential preliminary in a few patients, but it has usually been done already, and indeed, the parents often attribute the child's symptoms to the operation irrespective of the reasons which occasioned it. Circumcision has not, of course, caused the stenosis, but the operation does sometimes seem to have been performed in the false hope of relieving the urinary obstruction.

*Operation: Meatotomy.*—The simplest of plastic operations is sufficient, but a general anæsthetic is required. An injection of atropine (gr. 1/150 for a baby) is administered and the patient anæsthetised with ether. Iodine is applied to the glans penis and a fine scalpel or pointed tenotome is introduced ¼ inch into the urinary meatus. An incision is then made into the inferior surface of the urethra traversing the substance of the glans until its inferior surface is reached. A tapered glass bougie is inserted, and if this does not easily pass to the required distance the incision must be carried a little further up the urethra. Bleeding is negligible, and it is now only necessary to prevent the margins of the incision falling together. This is best done by a fishing-gut stitch on either side which passes from the mucous surface of the incised urethra through the glans and then traverses the corona before being tied on the outside of the glans. These stitches should be removed in about five days. The operation is completed by applying a little iodoform ointment on ribbon gauze.

After-treatment is simple but important. Epithelialisation of the raw surface occurs rapidly, but the enlarged meatus must be prevented from contracting. The patient's mother is given a solid glass rod 4 in. long and 1/5 in. in diameter. One end of this is sharply tapered to 1/12 in. By this means the meatus can be dilated from 1/12 to 1/5 of an inch without passing the rod far into the urethra. The instrument must be boiled before use, smeared with iodoform ointment, and introduced twice daily for six weeks.

A similar condition occasionally occurs in patients suffering from penile hypospadias. There is sometimes a minute orifice on the under surface of the penis, and none upon the glans. It may then be necessary to perform the same kind of plastic operation on the existing meatus before undertaking radical treatment for the hypospadias.

*Results.*—The results which follow this simple procedure in pin-hole meatus are completely satisfactory and permanent. No special surgical skill or instruments are required, and the operation may be performed by any medical man under the most ordinary conditions.

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# Special Articles.

## GENERAL MEDICAL COUNCIL.

FRIDAY, NOV. 25TH: COMMITTEE BUSINESS.

*Progress with the Revisions in the Curriculum.*

IN our last issue (p. 1206) we referred to the informatory report on this subject which was laid before the Council by the Chairman of the Education Committee and formally adopted. The Council issued in 1922, under the title of "Resolutions of the Council," a set of some 60 recommendations for the improvement of the curriculum in medicine. In 1925 it directed its Education Committee to inquire into the progress made throughout the country towards the readjustments made in the curriculum in conformity with these recommendations, which are recapitulated in the report of the Education Committee to the Council. The report shows that all the bodies excepting the University of St. Andrews have modified their curricula as a result of the suggestions of the Council. The results may be analysed under three headings: (1) the pre-registration examination; (2) the allocation of three of the five years of the curriculum to the subjects of clinical study; and (3) the stressing of the importance in the curriculum of a number of elements hitherto in many cases regarded as minor subjects and somewhat neglected in consequence; this was done with the object of making the training afforded to the practitioner more complete and more practical than formerly.

*The Pre-registration Examination.*

This proposal was made with the object of lightening the preliminary portion of the course, and sought to turn to this purpose all the assistance which other educational agencies, and in particular the higher secondary schools, are able to afford in laying the scientific foundation for the course. The Council intended that the medical applications of physics, chemistry, biology, anatomy, and physiology should be studied throughout the distinctly professional part of the course, and that the students' knowledge of these applications should be tested in the final examination. A pass in England for the higher school certificate in the subjects of the pre-registration examination (physics and chemistry), provided it includes a practical test, should be regarded as amply sufficient to satisfy the requirements of the examination in these subjects as defined above. The attainment of the higher school certificate demands one to two years of specialised study after the close of the ordinary secondary school course, and is within the range of the educated youth of 17 to 18 years of age. In Scotland a somewhat similar examination has recently been established as a subject of the higher school leaving certificate. Should a longer preparatory training than formerly be imposed upon the prospective student to enable him to attain these higher certificates, the Council have raised the age for students' registration from 16 to 17 years.

All the bodies have accepted and adopted the pre-registration examination. In most cases teaching for it is provided in the medical school either in special classes, or, as in some of the universities, in the ordinary classes of the faculties of science. The special classes vary much in length; some are restricted to one term; others stretch through two; others, again, extend through the complete year.

The Council did not mean that the requirements of the examination should be satisfied by a pass in theoretical physics and chemistry of the preliminary or matriculation examination in general education. The Council have defined it as being "*in addition to* an approved examination in general education," such as the student passes at the close of his school career and before entering the university. One of the bodies apparently accepts a pass in the matriculation examination in physics and chemistry in place of the pre-registration examination. Another point is that the Council intended that the teaching work to be tested by the theoretical and practical examination before registration should not be any part of the five years' medical course, defined as a continuous period of 15 terms from the date of registration. Three bodies at least, which still keep up the teaching for the old first professional examination during the first part of medical study, and have at the same time adopted a period of pre-registration course, have given definite intimation that they are prepared to antedate the commencement of professional study to the time of the commencement of the pre-registration work, by this means tending to shorten and at the same time to overload the professional course. On the other hand, there are many bodies which, while giving pre-registration courses of study, have at the same time lengthened their courses as a whole to five and a half or six years of study; this seems to be the case in the Universities of London, Manchester, Oxford, Bristol, and Wales, and possibly in other instances shorter periods have been added to the course. It would almost seem as if there were in the minds of the teachers in medical schools a distrust of the physical science which is taught in the secondary school, and the great majority of the bodies have provided pre-registration teaching within the medical school itself. It may be argued that, if the old first professional examination in chemistry, physics, and biology is still to occupy its position in the earlier part of the curriculum, there is much to be said for making the instruction on which it is based a continuation of a pre-registration course, provided at the same time that the professional course is not allowed to suffer in length.

*The Length of the Course.*

The recommendation of the Council is:—

"The period of professional study between the date of registration as a medical student and the date of the final examination for any diploma which entitles its holder to be registered under the Medical Acts should be a period of certified study of not less than five academic years, in the last three years of which clinical subjects shall be studied."

In Section (*d*) of the "Additional Resolutions" the Council has recommended:—

"That the curriculum should be so arranged that a minimum period of three years shall in every case be available for study after the completion by the student of the professional examinations in anatomy and physiology held at the close of the second year."

The academic year contains nine months, or three terms of three months each.

The great majority of the bodies have accepted and adopted the recommendation that three years should be devoted to clinical work after the completion of the examinations in anatomy and physiology at the close of the second year.

*Additional Subjects.*

These number about 60, and most of them have been explicitly included by the great majority of the bodies. In some cases the regulations for students have evidently been hastily drawn up and subjects have been omitted. Thus, for instance, many bodies have not definitely mentioned that out-patient attendance at the hospitals is required. This is particularly noted in the reports of the Irish schools, which, as a whole, do not seem to do full justice in their rules and regulations to the actual hospital work. Yet it is very probable that in all the Irish schools out-patient attendance is either compulsory or general. Under the heading of anatomy and physiology very few of the bodies use the terms biochemistry and biophysics, but give courses of instruction in physiological chemistry and experimental physiology. A number of bodies do not specify either the dissection of the entire body or human embryology; this may possibly be an oversight in the prospectus.

In introducing the report as summarised above, Sir Humphry Rolleston remarked that among the various subjects specially recommended for study by the Council, tuberculosis, venereal diseases, and antenatal

conditions had appeared to the Committee to be of great importance, as in modern circumstances the opportunities afforded to the student for their study had hitherto been inadequate. They had therefore requested Sir George Newman to prepare a personal report on the whole subject, and this had been circulated to the licensing bodies. Another subject which had especially engaged the attention of the Committee was the teaching of the administration of anæsthetics, a personal report on which, by the late Prof. H. Littlejohn, had also been circulated.

*Examination Committee.*

Sir Norman Walker remarked that the report of the Examination Committee contained an unusual amount of detailed information and was an attempt to broadcast to each licensing body an account of what all the others were doing. He warned the remaining five corporations who were still considering whether they would combine the examinations in anatomy and physiology that a recommendation towards that course might shortly be made, but that the Committee were deferring action until after their next visitation. He testified to the cordiality with which the Council's representatives were received on their visits to the examination rooms of the bodies, the usefulness of the discussions which took place, and the valuable hints that the visitors were able to give to some bodies from what they had seen of the work of others. According to the bulletin of the Association of American Medical Colleges the system worked equally well in the United States. Commenting on the recommendations of the Council in 1922 with regard to examinations, he laid stress on that clause which enjoined an interval of three years between the professional examination in anatomy and physiology and the final examinations, and on that calling for a mark of at least 50 per cent. in the clinical examination.

*The Registration of Students.*

A report was presented by Sir Humphry Rolleston with regard to the registration of medical students, which was adopted by the Council.

## CONFERENCE ON SPECIAL SCHOOLS.

PROVISION FOR DEFECTIVE CHILDREN.

Viscount BURNHAM, presiding at the first session of the Twelfth Biennial Conference of the National Special Schools Union held in London on Nov. 25th, said that the work done by special schools in various parts of the country was so successful that 80 per cent. of their past scholars were now in satisfactory employment.

Major I. W. HILLS, M.P., in an address on the After-care of the Physically Defective, quoted the President of the Board of Education, who had said, "Approximately 50,000 children in England and Wales are suffering from various forms of crippling defects. At most one-quarter of these are at present provided for." This figure did not include the blind, the deaf, the tuberculous, or the mentally defective, to say nothing of the large numbers of children classed as "delicate."

Miss MARTINEAU (Chairman of the Special Schools Committee, Birmingham), in a paper on the Future of the Day Special Schools, said that in 1925 32,975 children were reported as mentally defective, of whom only about half were receiving education. The uncertain policy of the Board of Education on the future of these schools was at once a stumbling-block for the local authorities who were undertaking their statutory duties conscientiously, and an encouragement to those who ignored these duties and failed to provide facilities for these unfortunate children.

Mr. J. M. GATTI (Chairman of the London County Council), in opening the afternoon session, traced the rapid growth in educational training, which together with medical inspection, had brought about marked improvement of the mental and physical condition of the children, so that the average standards of attainment expected were now much higher than those of 50 years ago. This was all to the good, but it had still to be remembered that it was the external stimuli or environment which brought out the inherent potentialities of the individual.

*Young Prisoners.*

Dr. J. J. LANDERS (Governor of H.M. Prison for Boys, Wandsworth) gave an address on Crime and Mental Deficiency, in which he quoted Dr. Goring's remark that the one significant physical association with criminality is a generally defective physique, and that the one vital mental constitutional factor in the ætiology of crime is defective intelligence. Dr. Landers went on to point out that "mental age," although an important factor, told nothing of the temperament or emotional stability of the delinquent, which were of prime importance in the cases seen in prison work. Here it was the higher grades of mentally defectives that were met with, and of these the great majority showed marked instability which was greatest during adolescence, and this weakness of emotional equilibrium showed itself in uncontrolled behaviour. Stating that only 5 per cent. of all remands at Wandsworth Prison were considered certifiable under the Mental Deficiency Act, Dr. Landers paid a warm tribute to the socialising effect of the special mental defective schools and to the voluntary associations for the care of the feeble-minded. Every mental defective, he said, was a potential delinquent, and the fact that comparatively few were seen in prison work in London was, he thought, largely attributable to the individual attention paid to the children at special schools, where attempts were made to benefit their health, gain their interest, supervise their progress, and, where possible, find suitable occupations for them after they left.

Dr. F. C. SHRUBSALL (Principal Assistant, Public Health Dept., L.C.C.) said that the education provided by the special schools was necessary to bring out the latent possibilities of the feeble-minded. Mixing with their mental equals, and acquiring or developing the ability to perform simple tasks, established self-respect, confidence, and contentment, and made them amenable to communal life. It was necessary, however, to carry this education on through the trying years of adolescence and to maintain supervision after they left school.

*Rheumatic Children.*

Dr. A. DINGWALL FORDYCE (Certifying Officer to the Liverpool Education Authority), speaking on Mental Efficiency and the Rheumatic Child, drew attention to the lack of administrative measures for combating rheumatism, a disease which perhaps caused more crippling than any of the other great scourges. He pictured the early rheumatic child as highly strung, often irritable, easily fatigued, unable to take part in continuous work or play, and lacking in appetite. Where parents were well-to-do the environment could be altered to suit this child; medical advice was sought early; diet, clothing, schooling, and rest were all carefully arranged. The child could be removed to a more suitable climate; he was guarded against chills and damp; septic foci were removed at once if they developed, and the child reached maturity organically sound. With the poor child it was otherwise. He was in a milieu which could not be changed, and perhaps he did not come under medical supervision until the damage was done. Though intellectually acute at school he was emotionally unstable and scholastically backward. For such children Dr. Fordyce advocated special residential rheumatic schools, where suitable training and discipline with thorough environmental care and prolonged medical supervision could be arranged.

Dr. J. NAIRN DOBBIE (Assistant Medical Officer, L.C.C.) said that the mentally unstable child was also the physically incoördinated type, and the picture drawn by Dr. Fordyce of the early rheumatic was

that of the "difficult" or neurasthenic child, and it was from this class that not only the rheumatic but also most inefficient children were drawn. Though provision must be made for those who were already the victims of rheumatism, it would be well to look to the preventive side. The present-day treatment of rheumatism was not specific, but was exactly the treatment most authorities advised for the neurasthenic child. To be effective it must begin early, and the child must be removed from the psychical and physical incompatibilities of the poor home or, alternatively, these must be rendered as innocuous as possible. To this end Dr. Dobbie suggested broadening out the maternity and child welfare schemes and bridging the gap between them and the school medical service by providing nursery schools run on open-air lines. The economic value of these steps would be apparent in preventing most of the crippling seen among school-children to-day.

## INSURANCE AGAINST THE DOCTOR'S BILL.

WE have already referred[1] to a scheme, instituted by Family Medical Services, Ltd., whereby an insurance policy can be taken out to cover the financial risks of medical service. We have now received full particulars from the managing director, Mr. B. B. Ormerod, of 20, York-street, Manchester. He points out that, unlike food, education, clothing, old age, and the other items of the middle-class budget, the doctor's bill cannot be certainly estimated, and provision therefore cannot be made for it. The "Anchor" policy is designed to meet this difficulty. It applies to all persons between the ages of 2 and 55 not included under the National Health Insurance Act, and the premium works out at from 3½*d.* to 1*s.* 6*d.* per week per member of the family. An average premium for two persons would work out as follows:—

| | £ | s. | d. |
|---|---|---|---|
| General practitioner's account, up to 5*s.* per visit .. | £1 | 0 | 0 |
| Operations, including nursing and incidental expenses up to £50 .. .. .. .. .. .. | 1 | 5 | 0 |
| Specialist consultations .. .. .. .. .. | 0 | 9 | 0 |
| Annual premium .. .. | £2 | 14 | 0 |

The insured person carries a primary small charge up to £2 in order to eliminate the trouble and expense of small claims. A family of four people could be insured for all general practitioner's fees over £3 and for operations up to £50 per person for an annual premium of £4 5*s.* 6*d.*, and reductions are allowed as the family increases.

This scheme, the financial security of which rests on backing by underwriters at Lloyds, clearly has advantages over the ordinary sickness policy, under which a man insured for sickness benefit receives the same sum whether he has been three weeks in bed at home with influenza and hardly any expenses, or whether he has spent three weeks in a nursing home after an appendicectomy which cost him anything from £50 to £100. Whilst the "Anchor" policy does not at present provide for requirements like massage, spectacles, dental treatment, inoculations, sanatorium and hospital treatment, the organisers are stated to have these "extras" on the medical bill in mind.

### *Regular Medical Examination.*

Closely allied with the insurance policy is the scheme of periodical medical examination. This was the subject of a deputation to the Minister of Health recently from the People's League of Health,[2] when it was urged that insured persons under the National Health Insurance Act should be regularly overhauled by their panel doctors. The Minister was unable to contemplate such a heavy expenditure to the country at present, but private schemes are likely to find favour with a section of the public. The Regular Medical Examination Association (1, Princess-street, Manchester, and 1, 2, Great Winchester-street, London, E.C. 2) offers an assurance scheme for half-yearly examinations of persons not covered by the National Health Insurance, on the same financial basis as the policy of Family Medical Services, Ltd. Although two of the leading life offices in this country have also associated periodic examination with their policies, it is usually only the father of the family who takes out a life insurance, and, so far as we know, the scheme under review is the only one that attempts to meet the need of mother and children as well. That the policy of regular examination is really practical is suggested by the experience of the Metropolitan Life Assurance Co., of New York. Under a scheme of examination during the last 14 years the average duration of life of its members has increased by nine years, whereas the extension of life amongst the general population during this period was only four and a half years. Of those examined, moreover, no less than 99 per cent. were found to be living in some defective but easily corrected manner.

The annual premium asked by the Regular Medical Examination Association for a bi-annual medical overhaul is 15*s.* for the first member of the family and 12*s.* for each additional member. Out of this the doctor is offered a fee of 6*s.* and 5*s.* respectively on each examination. Should the chosen medical man demand a higher fee the Association will negotiate with the patient, but will not themselves bear a higher charge. Proposers who wish to arrange for only one examination during the year will also be encouraged.

[1] THE LANCET, 1925, ii., 616; and Sept. 17th, p. 615.
[2] THE LANCET, Sept. 17th, p. 615.

## MEDICINE AND THE LAW.

### *Doctors and Detailed Bills.*

COMMENT was made in this column some weeks ago upon the dictum of a county court judge that a doctor is in no more privileged position than a tradesman in respect of the duty to furnish a detailed account. A decision of the King's Bench Division on Nov. 22nd throws further light upon this topic. A partnership of doctors practising at Maidenhead sued for the payment of 3 guineas fees in the Windsor County Court. The defendant (husband of the patient) obtained from the Registrar an order for the delivery of further and better particulars giving details of the medical attention and advice. The plaintiffs appealed to the county court judge against the order, and he reversed his Registrar's direction. Thereupon the defendant made an *ex parte* application to the High Court for leave to appeal from the decision of the county court judge. From the statement of counsel and the comments of Mr. Justice Salter it appears that the claim for 3 guineas had been supplemented by a list of dates and fees; particulars had been given of seven visits at 10*s.* 6*d.* a visit and gas £1 1*s.*, total £4 14*s.* 6*d.*, which in the claim was reduced to £3 3*s.* But these details were not what the defendant (a solicitor) wanted; he sought details of the treatment or advice as well. The patient, it was stated, had suffered from a bad mouth caused by a decayed tooth. The defence was that the doctor gave improper advice, and the defendant wanted to know in advance of the trial whether the doctor would state that he had attended the patient for any ailment in addition to the bad mouth. Mr. Justice Salter, giving judgment, dismissed the application. "We think," he said, "that the county court judge was right. The bill is for 3 guineas; if doctors were called upon, when sending in their bills, to expand the particulars of each visit, they could never carry on business."

This common-sense decision is welcome, but it must be remembered that decisions of this kind depend each upon their own set of facts. This was a county court case, and county court judges rightly do not indulge the prolonged skirmishing for position which usually precedes a High Court action and which causes expense and delay. Nor does the High Court lightly

interfere with the discretion of the county court in such matters—least of all upon an *ex parte* application. The defendant was not disputing the items in the claim, but was setting up a counter-attack of a different nature. Every defendant is entitled to have such information of a plaintiff's claim as will reasonably enable the preparation of a defence; but in this case the High Court evidently thought the defendant was already sufficiently informed.

*Gassed in a Bathroom.*

There was an unusual claim in the High Court last week against the Lambeth Borough Council by a widow whose husband had been found dead in a bath in a house rented from the defendant corporation, death having been due to carbon monoxide poisoning and drowning. The plaintiff's case was that the gas water-heater had been improperly installed by the corporation, that there was no proper ventilation in the bathroom, that the products of combustion escaped into the room, and that the defendant corporation had given no warning to keep the window open when the geyser was in use. The defence denied that there had been any negligence or wrongful act on the part of the borough council or its servants; it asserted that the water-heater was properly fixed and reasonably safe and proper care taken, that an adequate outlet for waste gases was provided, and that sufficient ventilation was allowed for the bathroom; if there was any negligence (which was denied), it was pleaded that the deceased man had been guilty of contributory negligence. Giving evidence for the plaintiff, Dr. Welch, divisional surgeon of the Lambeth Division, explained the effect of carbon monoxide upon the human body, stating that the victim would be unaware that he was being poisoned, the gas being tasteless, odourless, and colourless; five minutes' exposure to a mixture of air and 1 per cent. of carbon monoxide would, he said, prove fatal. Evidence for the defence was not heard as the case was settled, the borough council making an *ex gratia* payment of £1000 (£100 to the widow and £300 to each of three children), as well as assisting with the plaintiff's costs. There were various nice questions of law thus left undecided; it was doubtful whether the claim would have succeeded as based on negligence or whether it was a matter of landlord and tenant. It could not be suggested that any notice had been given by the tenant of the alleged defect in the bathroom. There was a further point whether the house could be described as unfit for human habitation within the meaning of the Housing Act; if the answer had been in the affirmative, the plaintiff's claim would have been better fortified. It was clearly a satisfactory ending to the case to make a compassionate payment to the plaintiff; whatever the legal liability, the circumstances suggest that detailed and definite explanation should be given to tenants of the possible danger of using a geyser without adequate ventilation.

*Paternity and Blood Tests.*

The *Times* of Dec. 5th published a message from its Munich correspondent describing the use of blood tests to determine paternity in the course of a criminal trial in Württemberg. A woman applying for an affiliation order had sworn that a particular man was the father of her illegitimate child. Tests were made of the blood of the child, the mother, and the alleged father, and it is reported that the qualities of the child's blood bore no resemblance to those either of the man or the woman, but, on the contrary, revealed entirely different characteristics. Apparently the court accepted the results of these tests as proof that the paternity of the child must be attributed to some other man. It also accepted them as proof that the woman had committed perjury, and she was sentenced to six months' imprisonment.

It would be rash to draw conclusions from what is necessarily a brief report. In England Sir Frank Newbold, K.C., aroused interest a year or two ago by stating from the bench at Devon Quarter Sessions that science might soon supply a sure and simple test in bastardy cases. Judging, however, from discussions at the Medico-Legal Society it would seem possible to be certain only in a limited number of cases—e.g., a child whose blood is found to be Group II could not have sprung from two Group IV parents, or, more generally, the appearance of properties A or B in the offspring when absent in the parents constitutes proof of non-paternity. The *Times* of Dec. 6th stated that the highest Prussian court has pronounced a judgment contrary to that of the Württemberg tribunal. Medical evidence was apparently given to the effect that, out of 2093 blood tests made in 1926, all except one indicated the affinity of blood between child and parent. This one exception, however, rendered the test inconclusive for legal purposes. In our own criminal courts scientific evidence has not always been accepted without reservation. It is recorded that in a trial at Taunton Assizes in 1857 Lord Chief Justice Cockburn expressed considerable doubt of the trustworthiness of scientific evidence differentiating the corpuscles in human blood from those in the blood of an ox, sheep, or pig. He advised the jury not to convict "on this scientific speculation alone." Similarly scientific proof of identification by finger-print seems seldom to be placed before a jury. The police rely upon it in the detection of a criminal, but do not greatly employ it for the purpose of obtaining a conviction.

## PARIS.

(FROM OUR OWN CORRESPONDENT.)

*Chronic Nephritis and the Salt-free Diet.*

AT the last medical congress in Paris, which was held in October, there was a long discussion on the various forms of œdema, and the papers read by Profs. Autel, Mauriac, Gowaerts, Vallery-Radot, and Nicaud were among the most important contributions that have been made to our knowledge of this subject. In France Widal's theory has been generally accepted, and the rôle of sodium chloride in the pathogenesis of œdema in Bright's disease has been undisputed until recently. Though nowadays the physiochemical theory has many adherents we remain faithful in practice to Widal's views, and in consequence to the salt-free diet. Daily experience shows that this is superior to a purely milk diet for nephritis with œdema, and that it is also useful in nephrosclerosis without œdema. There is in this no contradiction. The work of Blum of Strasbourg and of Mauriac of Bordeaux has shown that œdema chiefly depends on the retention of sodium, whereas in nephrosclerotics one often finds retention not of sodium, but of chlorine. This explains how the salt-free diet can be useful in the two different forms of renal disease.

*The Centenary of Villemin.*

We have just been celebrating the centenary of the birth of Villemin, who in 1861 discovered that tubercle was virulent and infectious. What objections were raised against him; yet his discovery triumphed, thanks to the work of Koch, who confirmed his findings. However great was the merit of the German bacteriologist, it cannot be ignored that Villemin's research on virulence had greater importance as regards the history of the pathology of tuberculosis than the discovery of the specific bacillus. His doctrine, for 50 years regarded as the only accurate one, is to-day being challenged, and many specialists are again taking up the ancient theory that the disease is hereditary. Their arguments, based on recent bacteriological research which has shown the multiple forms of the tubercle bacillus, are not without value, and perhaps the heredity theory will again take its place beside the contagion theory.

*Treatment of Pernicious Anæmia.*

The use of liver for pernicious anæmia is becoming steadily more popular in France, an interesting case being recently reported to the Société Médicale des

Hôpitaux of Paris by Noël Fiessinger and Castéran. The patient had reached a really grave anæmic condition and the size of her spleen made it seem that splenectomy would have to be done almost at once. Liver was given at first in the form of sandwiches, between slices of bread and butter and spread with anchovy. Daily doses of 100 to 250 g. of raw calves' liver were thus administered and the patient went on taking it for four months without break. The result was an increase in the number of red corpuscles and the percentage of hæmoglobin. The size of the spleen diminished and the patient's condition has, in fact, been completely transformed.

Of the diplomas awarded in 1926–27 by the various French universities, 1049 were official, conferring the right to practise, and 112 were the so-called "universitaire" diplomas, which are merely honorary.

An American Medical Organisation has just been formed at Paris by Dr. Joseph Haas, of New York, who will serve as vice-president. The objects of the organisation are to promote scientific advancement and social intercourse, and to provide general and special information for American medical men studying in Paris.

The Académie des Sciences of the Institut de France has awarded three Montyon prizes, of 2500 francs each, to Bensaude, for his work on endoscopy, rectoscopy, and sigmoidoscopy; to Carré, assistant director of the French National Laboratory, for veterinary research; and to Levaditi, for his studies on herpes and zoster. Zoeller received honourable mention for his investigations on diphtheria; the Barbier prize, of 2000 francs, was granted to Leri, for his studies on bones and joints; whilst the two Sergents jointly received the Chaussier prize of 10,000 francs, for their 25 years' work on malaria in Algeria.

## SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

### *Excessive Prescribing.*

THE recent appeals of Glasgow doctors from the findings of the Panel and Insurance Committees have now been disposed of, after full inquiry by the Scottish Board of Health. Of the appellants seven lose their case and the surcharges amount to £205, with five guineas expenses in each case. It is disappointing that after 15 years of continuous supervision, criticism, and control of prescribing from the standpoint of the drug fund, there should still be so many cases of real carelessness—for that must be the meaning of it—leading to excess of what has been found reasonable by a body of practitioners like the Panel Committee. There must, however, be a deep root to these anomalies. The medical schools in their teaching take no account of prices and economy of quantities; this is a side of prescribing that is simply not taught. In all conscience the curriculum is heavily loaded already, but when we reflect that this matter of prescribing affects some 16 million of the population of this country it is time that some attention was given at the right stage to the necessity for taking price and utility as well as elegance into account. The Glasgow cases are striking, but they do not stand alone.

### *Edinburgh Slums.*

Edinburgh has opened an inquiry into another big slum clearance scheme. The special part of the scheme now under investigation concerns the St. Leonards ward, which has long been known as one of the most congested sections of the city. The usual statistics have been prepared by the medical officer of health; he shows that infant mortality for the whole city is 88, but for St. Leonards 104, and for all the scheduled areas taken together 132. The death-rate over the group of 15 areas as a whole is 21·9 against 14·4 for the whole city, and it is these unfailing differences of the unhealthy areas that continue to justify the attack on bad housing. No doubt there are other factors than mere house room; but those other factors cannot be handled so long as the house room remains what it is. Statisticians sometimes comment on the fallacious reasons given for the incidence of diseases like tuberculosis and maintain that the lower-class houses necessarily are occupied by the less efficient classes of the population. The doctrine is a comfortable one; but the figures recently produced by Glasgow and those invariably found where slums are tackled seriously, make it quite clear that, whatever be the ultimate causal interpretation, the higher disease- and death-rates are always found where there is overcrowding and the degradations associated with it, and those high rates tend to come down as soon as the populations are transferred to the new houses. This is good enough for practice. In Edinburgh the real battle will begin when the problem of the "Royal Mile" comes to be faced. One hopes that the city will make some serious effort to reconcile modern town-planning with the respect due to Scottish history. Germany in her handsome treatment of the mediæval towns like Rothenberg, Nuremberg, Hildesheim, and ancient Leipzig, to name only a few, has shown by her practice what the ancient cities owe to themselves.

### *Royal Faculty of Physicians and Surgeons of Glasgow: President's Badge.*

On the conclusion of his term of office as President Mr. R. M. Buchanan presented to the Faculty a badge of office to be worn by the President, and at the November meeting he invested with it his successor, Dr. G. H. Edington.

The badge is in the form of an oval medallion in gold, on the obverse of which are the armorial bearings of the Faculty. The bearings are in enamel of the appropriate heraldic colours. They consist of a shield with, in first and fourth quarters, azure, an Æsculapian rod in pale between a lancet on the dexter and a poppy slipped and seeded on the sinister, all proper; in second quarter, the Royal Arms of Scotland; and in the third quarter the arms of the City of Glasgow. Above the shield is placed a helmet befitting the degree of the Faculty, above which is the crest, an open book surrounded by an antique burning lamp, and above all the motto, *Conjurat amice*. The supporters are, dexter, Minerva, and sinister, Hygeia, and on a compartment below the shield this motto, *Non vivere sed valere vita*. These arms were adopted in 1863, in substitution for the previous armorial symbol, and were matriculated in 1910, following on the grant of the title "Royal" by the late King Edward VII. At the time of their adoption, careful search of the records of the Faculty failed to throw any light on the date or the circumstances of the adoption of the previous symbol. The old symbol was the rod and serpent in the centre of a shield and flanked by lancet and poppy; and the motto was the *Conjurat amice* of Horace, which might be rendered "in amity to dwell," and might be considered an allusion to the dual composition of the Faculty. No reason is given in the Minute of 1863 for the adoption of the second motto. It has evidently been held to express the chief object of the Faculty—namely, care for the health of the public. The reverse of the medallion is inscribed *Donum Dedit R.M.B. MCMXXVII.*

The badge, which is worn suspended round the neck by a dark blue riband, was designed and manufactured by Edwards, Buchanan-street, Glasgow.

# Public Health Services.

## REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are 1926 statistics of two seaports, three textile, and three cathedral towns :—

| Name of district and estimated mid-year population. | Birth-rate. | Death-rates per 1000 of the population. | | | | | Death-rates per 1000 births. | | |
|---|---|---|---|---|---|---|---|---|---|
| | | All causes. | Tuberculosis. | Cancer. | Respiratory diseases with influenza. | Heart disease. | Diarrhœa, &c., under 2 years. | Infant mortality. | Maternal mortality from childbirth. |
| Hull .. .. (294,600) | 21·6 | 12·8 | 1·18 | 1·37 | 2·8 | 1·5 | 13·5 | 82 | 3·3 |
| Portsmouth .. (231,500) | 18·2 | 11·7 | 0·95 | 1·38 | 1·9 | 1·6 | 8·0 | 55 | 3·1 |
| Bradford .. (288,700) | 16·3 | 13·6 | 1·01 | 1·59 | 2·1 | 1·4 | 15·3 | 92 | 7·0 |
| Bolton .. .. (177,000) | 16·3 | 14·1 | 0·93 | 1·33 | 2·8 | 1·8 | 16·2 | 101 | 3·4 |
| Preston .. .. (124,200) | 17·4 | 12·8 | 1·13 | 1·34 | 2·2 | 1·7 | 11·1 | 90 | 7·8 |
| Norwich .. (123,500) | 17·3 | 10·6 | 0·91 | 1·34 | — | — | 3·7 | 53 | 3·7 |
| York .. .. (84,430) | 18·0 | 12·0 | 0·86 | 1·39 | 1·6 | 2·2 | 10·9 | 65 | 4·5 |
| Chester .. .. (41,913) | 19·9 | 13·0 | 1·03 | 1·43 | 2·6 | 1·4 | 11·9 | 80 | 2·4 |

The neonatal mortalities were markedly higher in the mill towns : Bradford 39, Bolton 44, and Preston 42 ; to be compared with Hull 30, Portsmouth 23, Norwich 21, York 34, and Chester 26.

### *Hull.*

Dr. W. Allen Daley reports that closer coöperation has been secured with the school medical department. On Sept. 1st Dr. James Fraser, the first school medical officer, retired. The medical officer of health has now been appointed school medical officer and all the preventive medical services are under a unified command. All the clinics will be made available for cases of every age.

The new municipal V.D. clinic was opened in October and takes the place of the clinic previously carried on at the Royal Infirmary. The new building is thoroughly well equipped as shown by plans and photographs. The men's entrance is in one street and the women's in another. Dr. Edward Harrison, the senior clinical officer, and Dr. R. J. Barlee, the assistant, both "part-time," conduct all the weekly sessions except one for married women and children, which is taken by Dr. Susan Gilchrist, the maternity and child welfare officer. In the early days, says Dr. Daley, it was thought that an ad hoc clinic would not prove successful, but there is every reason to believe that the new Hull centre will be quite as successful as ad hoc centres have proved elsewhere. The most serious defect of the scheme has always been the failure of patients to make continuous attendance and the failure is not peculiar to seamen. "No less than 160 male cases of syphilis ceased treatment before completing the first course" out of a total of 368. When the year opened an outbreak of small-pox was in progress, which began in October, 1925, and 35 cases occurred in the first quarter of 1926, the last case being reported on March 16th. On Sept. 30th a case of chicken-pox was notified in an unvaccinated girl, which was visited by the M.O.H. and ultimately found to be small-pox. One further case in an unvaccinated boy was the only result.

A health exhibition held in the city hall, Oct. 16th to 23rd, appeared to be productive of much good. This was, of course, in addition to other methods of health education as to which Dr. Daley puts the work of the health visitors first, but thinks their importance would be rivalled by health teaching in the schools if this were done according to a fixed syllabus instead of in the present haphazard way. Dr. Daley pleads for an early decision as to the future of the Poor-law hospitals and that the dual hospital service at present provided by the ratepayers should be unified and put to the best possible use whatever its origin. Much activity is being displayed as regards environmental hygiene. The water-supply of the courts is being improved. Agricultural drains run through the city and a nuisance is caused by the silt removed from them when they are cleansed ; some of the more important are therefore being cleansed by the city engineer. It is hoped to secure by legislation standard dust-bins for all premises and not only for dwelling-houses. At present more than half the refuse is taken to tips. The tips are becoming filled up and the best method of disposing of the refuse is under consideration. The privy-conversion scheme is being carried out at a very rapid rate ; 7182 conservancy closets were dealt with during the year and there are now only 17,500 to be dealt with.

A record of ultra-violet light is kept on the top of the telephone exchange. Hull receives less of this light than the few places with which it can be compared. Hours of bright sunshine in 1926 were 1299·2, to be compared with 1117·9 in 1925. An effort is being made to reduce domestic smoke on the municipal housing estate by the provision of a "Cookanheat" apparatus. This has already been fixed in 476 houses and will be installed in 1724 more. "All the cooking is done on the same coke-heated stove which supplies an abundant amount of hot water for baths and washing and also heats the whole house by means of a radiator in every room." In the 69,000 houses of the city there are 33,658 gas-cookers and 23,152 gas-fires. A successful course of lectures and demonstrations on smoke prevention for stokers was held at the Technical College with an average attendance of 60. Fish-curing establishments increased from 50 to 56 during the year, and the health committee has decided that in future these places must be fitted with the revolving-hooded type of cowl.

The health committee takes the stand that persons who sell milk in unopened bottles must be registered as purveyors of milk, even although their premises are not legally dairies. Of 28 samples of milk examined five contained tubercle bacilli. Two farms were involved, but in neither case was the offending cow found. Satisfactory arrangements have been made to meet the puerperal fever regulations and antenatal work makes some progress. The births numbered about 6400 and 1153 patients attended the two antenatal clinics conducted at the maternity centre by Dr. Gilchrist and at the maternity home by Dr. E. M. Townend. The number of cases delivered in the home during the year was 532, 495 by midwives and 37 by doctors.

### *Portsmouth.*

Dr. A. Mearns Fraser says that further steps were taken towards the provision of a new combined maternity hospital and child welfare centre, and that progress has also been made during 1926 in housing. The number of houses completed was 682, more than in any year since the pre-war period, when the annual average was 760. A pair of Atholl steel houses are to be erected as an experiment. At a meeting with representatives of the county council and of the rural district councils of Fareham and Havant, a decision in favour of a planning scheme for the city and the immediately adjoining areas was arrived at.

Dr. A. Campbell, the V.D. medical officer, gives some particulars of the work of the clinic during the last ten years. During the first five years most of the patients were in the acute infectious stage. Now a considerable percentage are persons who contracted venereal disease many years ago. It is claimed that the official treatment of gonorrhœa in females will remove the need for much of the treatment which has hitherto been required in hospitals for women. The patients include young girls, but the number of children infected in Portsmouth is quite small.

Regular and adequate treatment for 185 cases of stricture has been provided. Dr. Campbell refers to syphilis as "a rapidly disappearing disease," and states that "223 cases of neurosyphilis are now living under happier conditions, most of them able to work and exist in comfort, a marked contrast to the outlook for such cases ten years ago." The 547 cases of congenital syphilis are with few exceptions growing up into healthy members of the community. Dr. Campbell concludes that the diminution of syphilis is due in a large measure to free treatment and increased knowledge of prophylaxis, the latter being of much more value in syphilis than in gonorrhœa. Dr. Ruby N. Foggie, the child welfare medical officer, held an antenatal clinic at the maternity hospital which was attended by 724 women. Antenatal work is also carried on at the Royal Naval Maternity Home. An insurance scheme is to be put in operation for the payment of the fees of doctors called in by midwives, on the same lines as that for the county of Hampshire. 118 children suffering from various forms of crippling were sent to the Treloar hospitals, where 55 beds are reserved for Portsmouth.

The hours of bright sunshine recorded during the year were 1688, as compared with an annual average for the previous decade of 1796

*Bradford.*

Dr. J. J. Buchanan reports that 1230 privies were converted into water-closets, leaving only 1170 to be dealt with. There are, however, 7440 houses supplied by waste-water closets. During the coal dispute foreign coal with a higher ash and a lower volatile matter content was burnt and caused less smoke, although much inferior in calorific value. Observations show that the deposit of cinder grit is usually greater at night time and that grit is chiefly deposited within 400 yards of a chimney, while fine ash or flue dust may be carried 1000 yards with ordinary wind velocities. The grit emission from chimneys is usually due to the use of low quality fine slack, and Dr. Buchan is thankful that few firms show such callous indifference to the welfare of the surrounding inhabitants as to burn this class of fuel. About half the milk of Bradford is produced within the city by a cow population numbering 3322. Among these the veterinary inspector found 21 tuberculous animals during the year; 14 had tubercle of the udder and seven other forms of tuberculosis; for these 21 animals the owners received £125 19*s.* 6*d.* as compensation, while the salvage was £70 13*s.* 1*d.* Of the 311 samples examined for tubercle 32 gave a positive result and all were from outside milks. Fourteen farms were involved. On six of these no tuberculous udder was found, but on the other eight farms ten cows with tuberculous udders were found and slaughtered.

Bacteriological examination of 1808 samples of shell-fish showed that, "as in previous years," the majority of mussels and cockles are heavily polluted. The water supplied from Barden Moor and Thornton Moor, though better than last year, was still somewhat unsatisfactory, judged by the presence of *B. coli.* The possibility of an avian source for these bacilli is not touched on however. The radiographic work for the tuberculosis dispensary is carried out at St. Luke's Hospital, but it is found that for the control of artificial pneumothorax treatment "screening" is of vital importance, and a high-powered X ray unit is therefore needed for the dispensary. The removal of the V.D. centre to the municipal hospital has not prejudiced its efficiency, and it is thought that the attendances have been improved by the local powers for compulsory notification for cases who fail to persevere with treatment. The existence of these powers has caused patients to resume treatment who have discontinued, and there is no reason to think that it has had the effect of deterring patients from seeking treatment.

The number of new houses erected during the year was 2193, of which 1241 were municipal. This is the highest number of new houses in the records of the city. At the close of the year there were 1161 municipal houses under contract. The Bradford Corporation Act of 1925 gives power for the removal to an institution of persons who are physically incapable of keeping their homes in a sanitary condition. This power was used in two cases during the year, one, a female, aged 70, of intemperate habits, and other, a male of 79, physically incapable owing to cerebral hæmorrhage.

*Bolton.*

Dr. C. W. Paget Moffatt, referring to the increase in the infant mortality-rate from 87 in 1925 to 101 in 1926, says that the main factor in the reduction of infant mortality is the education of the mother, and that there is ample provision in Bolton for assistance to mothers in the care of their infants. He also emphasises what is being done to prevent maternal deaths from childbirth. 2600 out of the 2900 births were attended by midwives and an antenatal clinic is provided to which they may send their cases when any difficulty is anticipated. A trained nurse is available to visit the patient, and the advice of a consultant whenever the medical attendant wishes. There are facilities for laboratory examinations and an excellent maternity home with 18 beds at moderate charges and free hospital treatment when needed.

The scheme for the conversion of privies and pail-closets makes good progress; 1562 of the former and 351 of the latter were replaced by water-closets during the year. The local authority makes a grant of £4 for each conversion, and Dr. Moffatt thinks that a similar grant should be available for the replacement of the 15,000 waste-water closets by fresh-water closets. The public abattoirs in Bolton only deal with less than one-sixth of the slaughtering as there are still 19 private slaughter-houses. The travelling vans cause no anxiety; 65 of these passed through in 1926. Their occupants were healthy and took a pride in seeing that their conditions were good. The stationary vans are "a totally different proposition." They number about 70; many are merely large wooden boxes on old lorries and they constitute a distinct danger to health.

About 2620 cows are stalled in the borough, and among these during the year nine cows with tubercle of the udder were found. There were two successful prosecutions under the Tuberculosis Order, one for failure to notify (penalty £5) and the other for failure to isolate a diseased animal (fined 5*s.*). The public analyst (Mr. H. Hurst) states that over 70 per cent. of the milk vended in Bolton comes up to the Grade A standard, and he thinks that the standards for all designated milks might be raised. Since September, 1924, insulin has been supplied free to uninsured patients who could not afford to pay for it. The hours of bright sunshine were only 945, 66 hours below the normal.

*Preston.*

Dr. F. A. Sharpe says the measures for the protection of infant life have been amplified by the inauguration of a central clinic where facilities are provided for the treatment of minor ailments in children and of dental defects in nursing and expectant mothers and young children, and there is a qualified masseuse to deal with cases of rickets and malnutrition. Dr. Sharpe thinks there is much unnecessary poor health among children caused by errors in nutrition, and that the unwearying efforts of the health visitors and the classes in cookery and housewifery organised by the Voluntary Workers' Association are of great value in this respect. The tuberculosis scheme has been strengthened by the opening of the "Chestnuts" Sanatorium in September with 13 beds for males and 17 for women and children. Dr. Sharpe does not anticipate, however, any striking progress until trade and housing are better and there is a marked improvement in atmospheric purity. He laments the apathetic attitude adopted towards smoke pollution.

The picking of mussels from the Ribble estuary was prohibited in October, 1923. The inspector paid seven visits to the beds during 1926; it was suspected that

mussels were brought up the river from Lytham, and plain-clothes constables were successful in making one seizure of bags of mussels. Out of 137 samples of milk 12 were found to contain the tubercle bacillus, and in the follow-up 16 farms were visited and 12 cows affected by tubercle of the udder were found and slaughtered. Dr. Sharpe points out that this weeding out of tuberculous udders by milk sampling has only a limited application, and that uniform veterinary inspection of all milking cattle should be the real objective throughout the country.

*Norwich.*

Dr. V. F. Soothill, who succeeded Dr. Cooper Pattin (on his resignation after 33 years' service) on March 31st, has much to say about the evil conditions of life in the older parts of the city. The overcrowding is explained by a chart, which shows that the decline of house-building began in the first years of the century and that there are nearly 20 years of arrears to be made up. During 1926 776 new houses were completed, of which 544 were municipal and of which 213, erected by other enterprise, received State assistance. At the end of June an outbreak of paratyphoid fever began. There were over 60 cases, mostly in July. Milk and ice-cream both came under suspicion, but the exact cause of the outbreak was not clear. There were no deaths.

*York.*

Dr. P. R. McNaught says the noteworthy features of the year were the approval of the council to the scheme for the extension of the isolation hospital and the making of arrangements for the treatment of puerperal fever and pyrexia. In the older parts of the city there are many old and dilapidated houses and overcrowding of houses on unsuitable sites. At the end of the year the corporation had completed 711 houses on their Tang Hall estate and 374 more houses were in course of erection. The waiting-list for Tang Hall estate houses is 1700 strong. The overcrowded houses known to the health department number 250 and no effective action can be taken owing to the shortage. It is estimated that 682 houses should be closed; 200 of these are in the Hope-street unhealthy area, the scheme for which has received the sanction of the Ministry. This area covers 3½ acres and houses a population of 805. A nuisance caused by the emission of smoke, gaseous vapours, and grit from the water-gas plant of the York Gas Co. arose in 1925, but up to now no remedy has been provided. A grit nuisance caused by the municipal electricity works has been remedied by additions to the steam-raising plant. The hours of bright sunshine totalled 1244·3, as compared with 1234·3 in 1925.

*Chester.*

Dr. D. Rennet says that the city's water-supply is taken from the river Dee, within the city boundary, about one and a half miles above the weir. Chester has no control over the many sources of pollution of the Dee. Some years ago an attempt was made by another authority to obtain water from one of the largest and purest tributaries of the Dee. A similar proposal is again under consideration, but Chester has taken no steps either to prevent this or to ensure an adequate and satisfactory supply for itself. The chemical and bacteriological examinations confirm the unsatisfactory nature of the present water-supply. Progress has been made in the matter of housing, but many years will be needed at the present rate to cope with the serious overcrowding. The new houses built in the city during the year numbered 238, and in addition the corporation built 102 outside their boundary. Meat-marking is now well established at the abattoir and the butchers fix up explanatory cards in their shops as to the origin of the mark. It has not been found practicable to extend the marking system to the seven private slaughter-houses scattered about the city. A butcher and pig-dealer were fined £20 and and £10 respectively in connexion with the attempt to sell obviously tuberculous pork.

## INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 26TH, 1927.

*Notifications.*—The following cases of infectious disease were notified during the week:—Small-pox, 233 (last week 226); scarlet fever, 2218; diphtheria, 1500; enteric fever, 144; pneumonia, 1175; puerperal fever, 28; puerperal pyrexia, 100; cerebro-spinal fever, 9; acute poliomyelitis, 10; acute polio-encephalitis, 4; encephalitis lethargica, 28; dysentery, 16; ophthalmia neonatorum, 82. There was no case of cholera, plague, or typhus fever notified during the week.

Of the 144 cases of enteric fever 54 were notified from the county of Hertford (where the milk-borne outbreak of paratyphoid is on the wane); 46 of these were from Hemel Hempstead (U. and R.D.), 5 from Watford (U. and R.D.), and 1 each from Barnet, Great Berkhamsted, and St. Albans.

*Deaths.*—In the aggregate of great towns, including London, there was no death from small-pox, 3 (1) from enteric fever, 39 (9) from measles, 4 (0) from scarlet fever, 6 (0) from whooping-cough, 32 (8) from diphtheria, 50 (10) from diarrhœa and enteritis under two years, and 66 (10) from influenza. The figures in parentheses are those for London itself. The deaths from enteric fever outside London occurred in Reading and Bristol. The number of stillbirths registered during the week was 295 in the great towns, including 49 in London.

# Obituary.

## MAITLAND THOMPSON, M.R.C.S. ENG.

WE have to record the sudden death of Dr. Maitland Thompson, at the age of 66, at his home in Richmond, Surrey. The son of the late Mr. Thompson, J.P., of Workington, Cumberland, he was educated at Repton and St. Bartholomew's Hospital, and qualified as L.R.C.P. Edin. and M.R.C.S. Eng. in 1884. After holding the posts of house surgeon and house physician at the West London Hospital in 1886 he was attached to the Scots Guards and accompanied Lord Wolseley's expedition for the relief of General Gordon at Khartoum. On his return he worked for a time in Lincolnshire, but later moved to Hemel Hempstead, where he was appointed surgeon to the West Herts Hospital and practised surgery for 25 years. Always interested in local affairs, he was a member of the Hertfordshire County Council and held the office of mayor of Hemel Hempstead, of which borough Astley Cooper, a descendant of the eminent surgeon, had not long before been the first mayor. He took a leading part in politics, was chairman of the local Conservative Association, and was chosen as a candidate for Parliament. At the beginning of the late war he joined the Royal Army Medical Corps and was engaged on home service at different stations until 1919, when he retired to Richmond. In retirement he enjoyed gardening, golf, tennis, and other sports, of which, as of shooting, he was very fond. He was also very active in local church affairs and was a keen Freemason. As a striking example of his genius for friendship it may be mentioned that for 42 years he dined, together with friends made during student days, on May 27th each year.

Dr. Thompson leaves a widow and two sons, his second son having died in 1918.

## WALTER CHARLES ORAM, M.D. DUB.

Dr. W. C. Oram, who died on Nov. 28th after a comparatively short illness, was born at Windsor, Nova Scotia, in 1875, and was the son of Mr. John Earle Oram, Professor of Experimental Science at King's College in that province. Educated in Dublin, first at the High School and afterwards at Trinity College, he early showed scientific ability inherited

from his father, and distinguished himself in physics and chemistry. Qualifying in 1900, he spent some time in the study of public health, but a natural bent towards physical investigation soon afterwards led to his taking up radiological work. In 1904 he went to Liverpool as assistant to the late Dr. Stopford Taylor, and took charge of the electrical department of the Skin Hospital in Pembroke-place. It was not long, however, before other and more important appointments came his way, and ultimately he became honorary radiographer to the David Lewis Northern Hospital, the Liverpool Stanley Hospital, St. Paul's Eye Hospital, and the Southport Infirmary. All this involved a great deal of work, to which he devoted himself until a week before his death. During the war Dr. Oram was on the staff of the Western General Hospital, and for a time was attached to the 57th General Hospital of the British Expeditionary Force. Apart from radiology, he was much interested in diseases of the skin. The scientific papers which he wrote were not very numerous, but were remarkable for their lucidity, and showed wide comprehension of the subjects with which he dealt. He was an accomplished and ingenious practitioner, many of the devices which he employed being of his own invention. In person he was courteous and sympathetic, and the profession in Liverpool held him in considerable esteem.

Dr. Oram married a daughter of Mr. J. W. Bright, and she survives him with one daughter.

### THE LATE MR. ANGLIN WHITELOCKE.

Prof. Grey Turner writes: I would like to add a few personal notes to your admirable obituary notice of Anglin Whitelocke, whom I first met at the annual meeting of the British Medical Association held in Oxford in 1904. He was the local vice-president of the Surgical Section and as a member of the executive and other committees worked hard to make the meeting the success which all present remember. During that week the Whitelockes kept open house and seemed greatly to enjoy dispensing hospitality. We next met in Paris in 1911 at one of the early meetings of the Provincial Surgical Club, as it then was, and regularly afterwards on visits to continental clinics or to surgical centres at home. On these occasions he proved a most charming and delightful companion, always ready to enliven the long journeys by his conversational powers and to add the results of his wide experience to the general store. He loved to speak of the time when he acted as house surgeon to Sir William Macewen, an experience of which he was ever proud, and his "chief" of those days remained his hero to the end. The spring meeting of the club, in 1914, was held in Oxford, and Whitelocke on that occasion carried out a whole series of operations, and I especially remember his rapidity, quickness of decision, long incisions, and the way he unhesitatingly explored the knee-joint with the finger. There were also demonstrations of cases at the hospital, but he saw to it that the strictly scientific side was not neglected, and in the afternoon after the whole club had been entertained to tea at his house, he arra ged with a colleague—it was Dr. Gunn—to give us apt laboratory demonstrations on the action of drugs on living muscle. Osler and Whitelocke were firm friends and the Regius professor of medicine gave us a delightful talk at the Bodleian on the history of surgery as illustrated by the books in that famous collection. None present is likely to have forgotten the evening when we dined together in Hall at Lincoln, of which college Whitelocke was an honorary graduate. The master, Dr. Merry, presided over the happiest of gatherings, and on looking back it is sad to realise how many of those present have since joined the majority.

After the war our peripatetic surgical society renewed its wanderings, and no one was more welcome than Whitelocke, who was as charming as ever, but it was noted that he lacked something of the old buoyancy. In the spring of 1927 ill-health prevented him from joining the tour of the club to Spain. This was a bitter disappointment to him and to us all, but he came to Victoria station to see us off and wish us a good journey. Those of us who saw him then cannot feel surprised that it was for the last time. Whitelocke can ill be spared and will be greatly missed by hosts of friends.

## The Services.

### ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. C. A. G. Phipps is placed on the Retd. List with the rank of Surg. Capt.

Surg. Lt.-Comdrs. L. W. Gemmell and R. P. Ninnis to be Surg. Comdrs.

Surg. Lieut. (D) T. E. Brevetor to be Surg. Lt.-Comdr.

#### ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Lt. J. E. Purves to be Surg. Lt.-Comdr.

Proby. Surg. Sub-Lts. J. O. Clyde and H. S. Waters to be Surg. Sub-Lts.

### ROYAL ARMY MEDICAL CORPS.

Lt.-Col. and Bt. Col. W. Riach retires on retd. pay on account of ill-health, and is granted the rank of Col.

Maj. H. C. Winckworth to be Lt.-Col.

#### ARMY DENTAL CORPS.

Lt. R. A. Roth to be Capt.

#### ARMY RESERVE OF OFFICERS.

Lt.-Col. A. E. Weld, having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

Maj. W. E. C. Lunn-Barker, R.A.M.C., Reg. Army Res. of Off., relinquishes appt. under Art. 507 (*b*), Royal Warrant for Pay and Promotion, 1926, and resumes the rank of Lt.-Col.

#### TERRITORIAL ARMY.

J. D. Robertson to be Lt.

### ROYAL AIR FORCE.

The undermentioned are granted short service commissions in the rank of Flying Officer for three years on the Active List: V. V. Brown, M. Clancy, W. Heron, F. E. Lipscomb, J. F. McGovern, C. P. O'Toole, S. B. S. Smith, G. H. J. Williams, and D. A. Wilson.

The undermentioned are promoted to the rank of Flight Lt.: E. Thompson and E. A. Aslett.

Flight Lt. J. E. Cox relinquishes his temporary commission.

#### RESERVE OF AIR FORCE OFFICERS.

Flying Officer C. J. MacQuillan is transferred from Class D II. to Class D I.

### INDIAN MEDICAL SERVICE.

Capts. G. B. Hanna, Pestonji Rustomji Vakil, and F. M. Kirwan to be Majs.

Lt.-Col. L. T. R. Hutchinson retires.

Lt.-Col. W. M. Anderson, Agency Surg., to be Residency Surg., Hyderabad. Dr. B. G. Kane, Asst. to Civil Surg., Raipur, has been appointed to officiate as Civil Surg., Raipur. Maj. L. H. Khan has been appointed Superintendent, Central Jail, Nagpur. Maj. N. S. Jatar, Superintendent, Central Jail, Nagpur, has been appointed Superintendent, Central Jail, Jabbulpore. Capt. G. W. Cearns, Asst. Civil Surg., Allahabad, has been appointed R.M.O., European Civil Hospital, Allahabad. Lt.-Col. F. A. Barker has been appointed Insp. Gen. of Prisons, Punjab. Lt.-Col. J. Frizelie has reverted to military service. Lt.-Col. J. Morison has been appointed Director, Pasteur Institute, Shillong. Maj. H. C. Godding to officiate as Officer Commanding British Military Hospital, Peshawar. Maj. N. D. Puri to officiate as Insp. Gen. of Prisons, Punjab. Capt. A. C. Chatterji, officiating Civil Surg., Serampore, has been appointed to act as Civil Surg. of Burdwan. Lt.-Col. Godson, Civil Surg., Hooghly, has been appointed Civil Surg., Serampore. Lt. W. D. Speedy has been appointed to the Medical Charge, Civil Station, Barrackore. Majs. J. A. Sinton and G. Covell have been appointed Director and Assistant Director respectively of the Central Malarial Organisation. Lt.-Col. H. Thoburn has been appointed Surgeon on the Viceroy's Personal Staff. Maj. St. J. E. Henricks, officiating Civil Surg., Mandla, has been appointed to the executive and Medical Charge, Subsidiary Jail, Mandla. Maj. S. L. Mitra has been appointed to act as Director of Public Health, Patna.

### DEATHS IN THE SERVICES.

Inspector-General Hadlow, R.N. (retd.), who died on Nov. 30th at Southsea, aged 91, qualified with the L.S.A. in 1857, and obtained the M.R.C.S. Eng. two years later. He was assistant surgeon on the *Conqueror*, and was present at the attack of the batteries in the Straits of Shimonoseki, Japan, in 1864. He received the Gilbert Blane medal and retired in 1894.

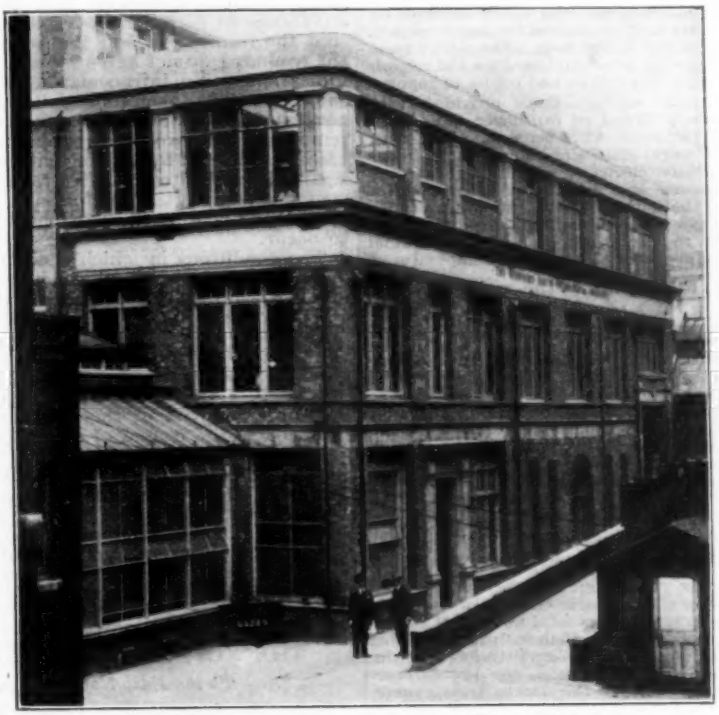
# PATHOLOGY AT THE LONDON HOSPITAL.

## FACILITIES FOR RESEARCH.

AT the opening of the Bernhard Baron Institute of Pathology at the London Hospital on Tuesday Lord KNUTSFORD said that the work of the medical college could not be separated from that of the hospital. It was a narrow view of things that limited the work of the hospital to the cure of the patient only; we must care for the future sick, learn by experience, and search for remedies against diseases at present incurable.

Sir HUMPHRY ROLLESTON pointed out that the great services unobtrusively rendered by a pathological institute were to help the patients by routine examinations, to advance knowledge so as to prevent disease, and to educate the future medical men of the country. From the purest charitable motives the public often earmarked donations and subscriptions for the use of hospital and patients only, thus excluding pathological or other departments whose work was essential to efficient treatment. It should be realised that the departments of pathology, bacteriology, and clinical pathology and biochemistry were just as essential to a modern hospital as were the radiological department, the operating theatres, and the wards; it was, in fact, rather strange that radiology, which was much younger in years than pathology and considerably the junior of bacteriology, was in general regarded as much more closely related to ordinary clinical practice than its seniors, probably merely because of the position of its work-room—namely, among the out-patient departments. Routine work was not only compatible with, but in an ideal institute was inseparable from research. It was a serious mistake to regard the routine work of a laboratory in the same light as a penny-in-the-slot machine, for though in some cases it may be easy to give a correct opinion, in others it might be very difficult. Not only did the material thus collected provide the data for research and analytical conclusion, but out of it there was always something new forthcoming. The importance of enabling research and publication of new information to be made must not be lost sight of in the consideration of the laboratory staff. In addition to the Director, Prof. H. M. Turnbull, there were two assistant directors, Dr. W. W. Woods and Dr. A. B. Bratton, three qualified men as pathological assistants with an honorarium and voluntary assistants. The personnel of a laboratory was even more important than its spaciousness and material equipment, and the London Hospital was extraordinarily fortunate in having the man first, so that he could direct the plans and arrange the splendid new laboratory so generously provided by Mr. Bernhard Baron. The amount of work that had issued from Prof. Turnbull's department during his tenure of office was surprising. Much of his work had been published, but not under his name, for, like the ideal head of a department, he was anxious that his colleagues and pupils should have every facility and encouragement to make use of his store of accumulated material. How many researches he kept secret from the public eye as a result of a severely auto-critical attitude was unknown, and probably only those working in close collaboration with him and cognisant of his teaching had any approach to an accurate knowledge of his unpublished work.

Sir Humphry Rolleston concluded by referring to the great traditions of the London Hospital and to the torch of pathological learning handed on from H. G. Sutton and F. Charlewood Turner and still burning brightly.



THE BERNHARD BARON INSTITUTE OF PATHOLOGY.

Prof. H. M. TURNBULL, in proposing a vote of thanks to Sir Humphry Rolleston, expressed his great pleasure that the Regius Professor of Physic at Cambridge should have opened the Institute. The Chairman of the hospital and the House Committee had done everything in their power to help him in organising the department, but in his early days there had been a great lack of material for pathological investigation. A pathological department should be so endowed that it could continue its work independently of the fluctuation of annual subscriptions, and with a further endowment of £100,000 he believed this object could be attained at the London Hospital.

Dr. ROBERT HUTCHISON seconded the vote of thanks and Mr. Bernhard Baron expressed the hope that he would live to see the Institute bear fruit. The proceedings then terminated.

The Institute, which is an expansion of the Andrew Clark Institute of Pathology opened by Sir Henry Roscoe and Lord Lister in 1907, has been named after Mr. Bernhard Baron in recognition of a gift of £10,000 for building and of £25,000 for permanent endowment. This endowment is supplemented by a sum of £5000 from the Rockefeller Foundation. The following is a description of the laboratories:—

The ground floor is occupied by freezing chambers for the storage of bodies, a mortuary chapel, and a waiting-room for friends; the latter two rooms have a separate entrance from outside. The post-mortem theatre is a separate building on this floor; the sides and roof are of glass and the roof is fitted with ventilators which draw up and burn the vitiated air. The first floor contains 12 rooms; a large room for the investigation of tissues removed at operations, rooms for the director, assistant directors, pathological

assistants, and technicians, research rooms, a room for the clerk and the records, and a room for washing glass-ware. In one of the larger of these rooms the cabinets containing microscopic slides will be stored. On the second floor is a large lecture and class-room to accommodate 50 students. Behind this is a room for storing specimens reserved for lectures, demonstrations or further examination, and a curator's room in which such specimens can be prepared. Two rooms which lie immediately beneath the animal houses have been specially fitted for animal experiment, but can also be used for other research. In another room students can work in their spare time. This floor also has a room for washing glass-ware. On the third floor are placed three animal houses and a fodder room.

The lecture and class-room is fitted for practical work. It has on three sides large windows with lights that swing on pivots so that they may easily be cleaned, and a "factory roof" with north lights; all the lights are fitted with blinds so that the room may be completely darkened when an epidiascope is used. The room for reserved specimens is fitted with iron racks to carry tanks, whilst the whole of the space beneath small windows in one long wall is occupied by a cupboard for small jars and by shelves for larger vessels. This room has a skylight and a tiled floor. The clerk's room will be fitted with a large fire-proof cupboard for the records and cupboards for storing the indices and copies of reports.

The animal houses have asphalt floors provided with gullies, and the cages are carried on cantilever slides. All the other rooms are furnished with benches, fitted with drawers, for practical work, slate slabs for paraffin ovens and incubators, gas points, electric points for lighting and for power, sinks, cupboards, and, usually, wash-hand basins. All the rooms except the animal houses and the room for reserved specimens have rubber flooring. The building is warmed by hot-water radiators, and those in the animal houses are arranged to give specially required temperatures.

Mr. J. G. Oatley, F.R.I.B.A., is the architect.

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REMOVAL OF BETHLEM HOSPITAL.—Formal notice has now been given that application will be made to the next session of Parliament for an Act empowering the governors to sell, lease, or otherwise dispose of portions of the Monks Orchard Estate which has been acquired for the erection of the new Bethlem Hospital. The notice is published in the *London Gazette* as from "the Mayor and Commonalty and Citizens of the City of London, Masters, Guardians and Governors of the House and Hospital called Bethlem situate without and near to Bishopsgate of the City of London"—that having been the site of the original hospital.

VITAL STATISTICS OF THE IRISH FREE STATE.—The annual report for 1926 of the Registrar-General of the Irish Free State was issued recently. The total number of births registered was 61,176, being 893 less than in 1925; and the total number of deaths was 41,740, being 1910 less than in 1925. Tuberculosis caused 4362 deaths, the lowest ever recorded in the Free State, while the deaths from cancer (3021) show an increase of 118 over the highest annual number ever previously recorded—viz., 2903 in 1924. Of the 61,176 births registered, 59,460 (97·2 per cent.) were legitimate, and 1716 (2·8 per cent.) illegitimate. The mortality from all causes in 1926 was 0·57 per 1000 below that for 1925, and 1·58 per 1000 below the average for the ten years, 1916–25. In urban areas the mortality was 15·52 per 1000 and in rural districts 13·44 per 1000. Infant mortality in 1926 was 74 per 1000 births, which was 6 per 1000 above the rate for 1925—viz., 68 per 1000. The rate for rural areas was 56 per 1000, and for urban areas 110 per 1000 births. The deaths from measles number 519, 321 above the number recorded in 1925, and 267 above the average for the ten years, 1916–25. Of the 41,740 deaths at all ages, 6781, or 16·2 per cent., were deaths of children under 5 years, including 3676 deaths of males, or 17·6 per cent., of the male mortality at all ages, and 3105 deaths of females, or 14·9 per cent. of the total deaths of females. Deaths of persons aged 95 years or upwards numbered 287, and they include 49 whose ages at death were returned as 100 years or upwards. Of the 41,740 deaths, 14,343, or 34·8 per cent., of the total deaths were 70 years of age or over. Deaths caused by violence in 1926 numbered 889 (0·30 per 1000), 73 more than recorded for 1925. Of the 889 deaths, 87 were classed as suicide, 44 to homicide, one to execution, leaving 747 to other deaths by violence, the majority of which were definitely stated to have been accidental. The number of emigrants from the Free State to "places outside of Europe and not within the Mediterranean Sea" during 1926 was 30,359 (as compared with 30,302 in 1925), and the number of immigrants was 1983, resulting in a net migration of 28,376 persons from the Free State in 1926.

# Correspondence.

"Audi alteram partem."

## CATARACT EXTRACTION WITH PERIPHERAL IRIDECTOMY.

*To the Editor of* THE LANCET.

SIR,—Of the operation described by Dr. J. N. Tennent in your issue of Dec. 3rd, I have had many years' experience. It is the one which, in my opinion, gives the best results. That some of my colleagues at Moorfields share this opinion is shown by the fact that this particular operation was performed 846 times at that hospital during the seven years 1919–25 inclusive. While in complete accordance with Dr. Tennent's statement that *the* most important advantage of peripheral over complete iridectomy is that the former prevents inclusion of lens capsule in the wound, I do not agree with him as to the contra-indications. No intraocular operation of any kind should be undertaken unless all risk of infection from conjunctival or lacrymal sac infection has been removed, while excess of cortical matter can in most cases be got rid of by washing out the anterior chamber. Again, loss of vitreous after removal of the lens, in consequence of the performance of a peripheral iridectomy, is an accident which I have never known to occur.

The conditions in which a complete iridectomy is preferable to a peripheral are, in my opinion, three in number—viz.: (1) the presence of posterior synechiæ; (2) when the pupil is so rigid that expression of the nucleus through the intact sphincter cannot be done without the employment of undue force; and (3) when the iris, after having been replaced, will not remain in position; this is usually caused by a tendency to bulge on the part of the vitreous. The accidental inclusion in the wound of a small mass of uveal pigment from the posterior surface of the iris has, in my experience, never caused the slightest trouble, provided that the iris itself has remained entirely free.

There are, of course, many practical points of importance in the technique of the operation.

I am, Sir, yours faithfully,

R. AFFLECK GREEVES.

Wimpole-street, W., Dec. 6th, 1927.

## THE NUTRITIVE VALUE OF BREAD.

*To the Editor of* THE LANCET.

SIR,—The contribution to our knowledge of this all-important subject made by Dr. Cramer and Dr. Mottram is extremely valuable. It will, however, fail in its purpose if attention is to be centred on any proprietary article rather than on the all-round improvement in the quality of bread as ordinarily supplied. "Hovis" is undoubtedly very superior in nutritive quality to white bread made from "patent" flours. But it is, after all, a case of "robbing Peter to pay Paul." The germ which enriches "Hovis" to an unnecessary extent could be made better use of if it was distributed throughout the nation's bread. There is not enough bread to go round if all bread was made to contain 25 per cent. of germ—nor is it necessary that it should. During the milling process various "streams" of products are obtained containing varying proportions of the different parts of the grain. It is only necessary to combine these various products in order to build up a flour which will contain a due proportion of all the constituents of the grain. Such combinations could be made to suit all tastes and requirements, and yet be infinitely superior to the "patents" now so generally used despite their poverty in vitamins and mineral salts. These reconstituted flours might be almost white in colour and be perfectly adaptable to ordinary methods of baking.

This would appear to be the solution of many, if

not all, of the difficulties which stand at the present in the way of the general bread reform.

I am, Sir, yours faithfully,
S. HENNING BELFRAGE.

Gloucester-place, W., Dec. 5th, 1927.

*To the Editor of* THE LANCET.

SIR,—The letters of Prof. V. H. Mottram and Miss G. Hartwell in THE LANCET of Nov. 26th may be answered together. In our recent paper we said that Prof. Mottram had made public the erroneous statement that white bread contains an abundant supply of vitamin B, and is not greatly inferior in this respect to wholemeal bread or germ bread. Prof. Mottram denies having said this, and hopes that our scientific accuracy is greater than our controversial. We therefore quote the manifesto signed by him, Miss Hartwell, and others which appeared in THE LANCET of July 23rd, 1927 :—

"While we admit that vitamin B, which is essential to health, is present in wholemeal flour and practically absent from white flour, we do not subscribe to the statement that it is not contained in white bread and that the use of white bread denies the human system the necessary amount of this vitamin."

"The fact is that any lack of vitamin B in white flour is definitely remedied when the flour is made into bread by the addition of yeast, which contains plenty of it."

We also said that the experiments of Miss Hartwell on which Prof. Mottram's statements appear to be based were faulty because the vitamin-B content of her diet was due to the butter which she included in her diet, and not to the white bread, and because no proper control experiments were carried out which would have demonstrated this fallacy. Miss Hartwell states in her letter that controls were made and that we overlooked that part of her paper. We did not overlook any part of her paper. If the reader will refer to her paper he will find that the butter used by her was not tested for the absence of vitamin B, which Miss Hartwell merely presumes. The reader will find, moreover, that rats fed on this butter and white bread made with baking powder instead of yeast increased in weight progressively during 12 weeks from 40 to 100 grammes. This diet must therefore have contained considerable amounts of vitamin B. Since this vitamin is absent from white flour—as the manifesto correctly states—and from baking powder, the source of vitamin B in this experiment must have been the butter. This fallacy vitiates all her results. With proper control experiments it can be shown conclusively that rats cannot live on a diet in which white bread is the only source of vitamin B.—We are, Sir, yours faithfully,

W. CRAMER,
J. C. MOTTRAM.

Imperial Cancer Research Fund, Radium Institute, Dec. 5th, 1927.

## CRIMINAL LAW AND INSANITY.

*To the Editor of* THE LANCET.

SIR,—A consideration of Lord Hewart's David Lloyd Roberts lecture leads me to ask for space to outline the following points. I assume that the two obligatory conditions of the McNaghten judgment have been fulfilled. The third condition laid down by this judgment is an alternative one—namely, that the defect of reason brought about by a disease of the mind must prevent the accused from knowing the nature and quality of his act, or prevent him from knowing that what he was doing was wrong.

Taking the first alternative I further assume that the accused knows the *nature* of his act—e.g., the slaughter of a human being other than himself. What meaning does the word *quality* bear? Can a person be said to know the quality of his act if he is unaware of its probable consequences to himself? If not, what is the minimum length of time for which this unawareness must exist to constitute legal insanity; does the law insist that such ignorance must exist before, during, and after the commission of the act, and, if so, for how long? If it does not so insist or fail to fix the duration, it appears to me that to be unaware of the quality of an act in the sense of a failure to realise the consequences to himself for a period only covered by the time necessary to commit the act brings an uncontrollable impulse within the bounds of the McNaghten judgment. For the words are "nature *and* quality," not "*or* quality."

Taking the second alternative, is the word *wrong* to be construed as illegal or wrong according to the ethical and/or moral standards or standard of the insane person? Such a person may commit an act which he regards as righteous while at the same time taking precautions to avoid the legal consequences of discovery. It may be that these points have been already dealt with; if not, I think they may help to clear up the differences between the medical and legal view of insanity.

It is perhaps not generally known outside the medical profession that many insane minds reason in a manner even more appallingly logical than that of an eminent lawyer. Their acts, however horrible, are the reasoned consequences of mistaken ideas. Lord Hewart says that the fact that a man thinks he is John the Baptist does not entitle that man to shoot his mother. If a man who thought himself John the Baptist did shoot his mother I think it would be found that he did so because he was firmly convinced she was Salome.

I am, Sir, yours faithfully,
GORDON WILSON, M.B.

Thurlstone, near Sheffield, Dec. 4th, 1927.

## ORGANIC HYPNOTICS.

*To the Editor of* THE LANCET.

SIR,—I am very glad that Sir William Willcox has again warned medical practitioners against the careless use of barbituric acid derivatives. They are extremely helpful preparations in the treatment of patients suffering from the sleeplessness, irritability, and mental unrest so commonly associated with the psychoneuroses and allied conditions, but extensive experience of their effects confirms my belief that the administration of medinal, veronal, dial, and the rest should be much more closely controlled than I find to be customary.

A patient who took sufficient barbitone to make him sleep for 72 hours told me he had never any difficulty in obtaining as much as he wanted on an old prescription; this large dose was said to be an accident, but as not long after he was decapitated on a railway line I have found it difficult to accept that view. Again, within the last few months dial was suggested as a simple and reliable hypnotic by a doctor visiting a patient of mine in a non-professional capacity. Of course he could not know that this patient had myocardial weakness and attacks of alcoholic nephritis, nor that in the same house was a mentally unstable individual always on the look out for new drugs. However, within a few days the latter so successfully doped himself with dial that urgent stimulant treatment was required to bring him round from a state of profound coma which for a time seemed likely to be fatal.

Drugs that are prescribed without restriction and easily purchased are not regarded by patients as "dangerous"; unless a prescription is written with carefully detailed directions and marked "not to be repeated" they often see no reason why they should not use barbitone-compound tablets as readily and safely as they use aspirin or soda-mint tablets. After all, it is a tablet age, and every household has its favourite cachets and tablets for ready use; but in my opinion it is time we seriously regarded Sir William Willcox's warning and made a rule never to give "open" prescriptions for barbituric acid hypnotics, nor to put patients in possession of more than three or four tablets at a time.

I am, Sir, yours faithfully,
E. L. HOPEWELL-ASH, M.D.

Grosvenor-street, W., Dec. 5th, 1927.

## THE WEIGHT OF THE BRAIN OF ANATOLE FRANCE.

*To the Editor of* THE LANCET.

SIR,—For a century past great importance has been attached to the brains of eminent men, the weight of which is presumed to be above the average—i.e., above 1360 g. or 49 oz. for men (and 44 oz. for women). The most recent weight taken is that of Anatole France, the celebrated French author, by Dr. Guillaume Louis and Dr. Dubreuil Chambardel, who read a paper on the subject at the Academy of Medicine in Paris on Nov. 8th last year. They reported that they found that the weight of the brain of Anatole France was 1017 g. only—i.e., 343 g. less than that of an average male citizen and less than the weight of the brain of an ordinary woman.

The small weight of the brain may, of course, be due to the age of Anatole France, who died three years ago, when he was 80½ years old. But Dr. Louis and Dr. Chambardel held that it was probably due to the nature of the fluid used for embalming the body, for they had performed an experimental test, which revealed that brains soaked in this fluid lost 10 g. in a day. They drew attention to the fact that Gambetta's brain, hitherto regarded as the lightest on record, was similarly prepared by Duval, and weighed 12 hours after embalming 1160 g. and a few hours later 1090 g., but must actually have weighed 1246 g.

Now it appears to me, quite apart from this report, that anatomists still do not know what to look for. That the intellect can have little, if any, reference to brain weight was argued already by Gratiolet, who was no mean authority on this subject. How unreliable—without the fullest details—these brain weights are, is shown by the careful weight taken of the brain of Helmholtz, distinguished for his wonderful researches in optics (*Zeitschrift für Psychiatrie*, 1899). The weight of his brain, including the blood coagulum, was 1700 g. This being removed, the brain weighed 1540 g., but so much blood remained that it was estimated that 100–120 g. should be deducted. This would reduce the brain weight to 1420–1440 g. Helmholtz had therefore a brain not much above the average weight; but how do we know that in the cases of the very heavy brain weights recorded, as those of Cuvier and Byron, allowance was made for the quantity of blood, as was made in the case of Helmholtz.

Lord Byron died in Greece in 1824, and English papers reported his brain weight as six medicinal pounds, a round figure which renders it suspect of being inaccurate. In any case it was probably a Neapolitan or Venetian weight, the former 1924 g., the latter 1807 g., and it was stated that Byron's brain was in a hyperæmic condition, so that probably no allowance was made for the blood which the brain contained. The brain of Cuvier, the famous naturalist and anatomist, remained for a long time the heaviest brain recorded of distinguished men. The weight was stated by Wagner as 1861 g., but this Broca corrected to 1829·96 g. Even thus reduced it exceeds the limits of the normal human brain by nearly one-third. To Spitzka, an eminent American neurologist, the explanation of Cuvier's heavy brain was very simple; it represented not intellect, but healed-up hydrocephalus.

Sir Walter Scott's portraits show an astoundingly large head, especially in height. It is on record that the cranial arch from ear to ear, measured from the mastoid process, was 19 in., whereas the average is only 14·6. The circumference of his head was 23·1 in., the longitudinal diameter 9 in., and the parietal 6·4 in. Yet in the report of the post-mortem examination of Scott the physicians stated that "the brain was not large." The peculiar shape of his skull was attributed to his lameness dating from infancy—another healed-up hydrocephalus. But if, as his physicians supposed, "the sagittal suture closed prematurely," his skull could never have grown to the enormous height we see in his portraits and busts.

Quality of the brain, number, and depth of the convolutions do not account for the differences in brain weights, for we are dealing exclusively with men who have achieved eminence. Nor can they be due wholly to differences in the bulk of the body, for, as Sir William Turner has pointed out: "The human brain, in all probability, attains its full size and weight at or about the age of 30, whilst the body not only increases in weight after this period, but in one and the same individual may vary considerably in weight at different stages of adult life, without any corresponding fluctuations taking place in the weight of the brain."

Size and weight of the brain can only indicate mental power, but does not tell us whether that power lies in extent of intellect, in strength of moral feeling, or in power of passion or affection. The evidence of comparative anatomy must not be overlooked, that we have some parts of the brain in common with animals, to administer to our animal wants, and that only those parts which are characteristically human can have any relation to the higher intellectual processes and moral qualities for which man is distinguished—namely, the frontal lobes. It is their size and complexity which must be estimated in judging of the superiority of a particular brain. This is the view of many distinguished authorities—Sherrington, Bolton, Ferrier, Bianchi, and others—but has not yet been sufficiently realised.

We have learned a great deal during the progress of the last 50 years of the brain as an organ of sensation and motion. What is needed now is research into the mental functions of the brain, to account for the numerous specific intellectual and other abilities of man. Brodmann and Elliot Smith have discovered about 27 structurally differentiated areas in the cerebral cortex, but we are still ignorant of their functions. If mental manifestation is dependent on brain structure and activity, it is time we learnt something more about it than we know at present.

I am, Sir, yours faithfully,

BERNARD HOLLANDER.

Wimpole-street, W., Nov. 29th, 1927.

## SURVIVAL AFTER OPERATION FOR BREAST CANCER.

*To the Editor of* THE LANCET.

SIR,—Your report last week of the discussion at the Medical Society of London on Nov. 28th on a series of cases of long survival after the operation for breast cancer, contains one important, if obvious, error. I am made to say that the method of routine use of radium at the time of the primary operation, which I have practised for the last seven years, has improved my private results by 90 per cent. What I actually said was that it had diminished my percentage of recurrences by 9 per cent., an important but not a sensational gain. At Montreal last year I gave fuller details of my results in a paper read before the American College of Surgeons. This paper will appear in an early number of *Surgery, Gynecology and Obstetrics*.—I am, Sir, yours faithfully,

W. SAMPSON HANDLEY.

Harley-street, W., Dec. 6th, 1927.

*To the Editor of* THE LANCET.

SIR,—In your report of the discussion on late results of operation for carcinoma of the breast at the Medical Society of London, Mr. A. J. Walton is said to have suggested that "those who spoke hopefully of these cases would be more pessimistic if they had a good follow-up agency at work." Of course, careful surgeons in discussing their results have always taken account of the factor of uncertainty introduced by the existence in their records of cases untraced, and actually there are published series where the proportion untraced was small. In the Leeds data discussed in Report No. 34 of the Ministry of Health's Series less than 5 per cent. of the 357 patients were untraced. The optimistic conclusion reached by Dr. Lane-Claypon depends in no way upon neglect of an elementary precaution and the results she reached are, within the necessarily wide limits set by ordinary

errors of sampling, indisputable. We can take it as ascertained that of the Class 1 cases (the disease certainly malignant but entirely confined to the breast) almost certainly more than 50 per cent. of the patients and probably more than 60 per cent. will be alive ten years after operation. We may also take it that of patients operated upon in an "average" condition the percentage of survivors may be as small as 15 per cent., and is not likely to exceed greatly 24 per cent. (a result in reasonable agreement with the 13 per cent. reported in the discussion by Mr. Jocelyn Swan, which may perhaps be too pessimistic if, in his series, there were any sensible proportion of untraced patients).

Mr. Zachary Cope "raised the question of how many cases would have survived without operation." This question has been raised before by several investigators and a summary of their results is contained in Report No. 33 of the Ministry of Health's Series. The answer to Mr. Cope's question is that on the average not more than 12 per cent. of untreated patients are likely to survive so long as *six* years from the date of first recorded symptoms (of course, a date anterior to that of possible operation), and almost half will be dead within two years.

For reasons set out at length in the report mentioned above, I believe that the word "cure," being ambiguous and hard to define, should not be used and that we should try to think in terms of years of life saved. If we do so, I am sure we shall not only agree with the optimistic surgeons but shall find it very hard to escape the conclusion that those who are pessimistic have not discovered some fallacy hidden from their colleagues but are merely unfamiliar with the literature of the subject.

I am, Sir, yours faithfully,

Dec. 6th, 1927. MAJOR GREENWOOD.

## MERCUROCHROME INTRAVENOUSLY.

*To the Editor of* THE LANCET.

SIR,—Anyone who has studied the literature on this matter will have been struck with the variation in dose and dilutions employed. A word of caution is desirable, particularly to those relatively inexperienced in the administration of this organic mercurial.

A pharmacologist, to whom I forwarded supplies for experiments on animals, sent me the astonishing report that a certain proportion of deaths might follow the injection of 8–15 c.cm. of a 1 per cent. solution (i.e., 0·08 to 0·15 g.) in man. On pointing out to him that a dosage of this kind has been used clinically in many cases he modified his opinion to the extent of admitting that there is an enormous variation in the tolerated dose of any drug in animals. Animal experiments are of great help, but clinical experience is clearly more valuable. I see the new and non-official remedies says that 10 mg. per kilo invariably kills rabbits, yet the dose of 5 mg. per kilo (i.e., 0·3 g. for a 10-stone man) is mentioned in that work. I have information of the repeated clinical use of 0·1 increasing to 0·2 g. of the compound in this country, injections in some instances having been given every day, without any untoward result except a mild stomatitis. And, on the other hand, I have information that 0·1 g., both in 1 and 0·5 per cent. solution, was not tolerated, intense diarrhœa being caused.

My own view is that the recommendation of L. S. Dudgeon (THE LANCET, 1926, i., 172) of 10 c.cm. of a 1 in 200 solution as the maximum that should be given, is a safe one to go upon, reserving bolder dosage—e.g., that of Andrew Balfour (*Brit. Med. Jour.*, 1925, ii., 1081) (20 c.cm. of a 1 per cent. solution), for such grave infections as plague.

It would be a great help if those who have had further experience with mercurochrome intravenously would communicate it, in order that the dosage and degree of dilution may be determined.

I am, Sir, yours faithfully,

W. H. MARTINDALE.

New Cavendish-street, W., Dec. 6th, 1927.

# Medical News.

UNIVERSITY OF DUBLIN: SCHOOL OF PHYSIC, TRINITY COLLEGE.—At the recent examinations the following candidates were successful:—

MASTER IN SURGERY.

Bernard Gluck.

FINAL MEDICAL EXAMINATION.

*Part II., Medicine.*—A. R. Ewart, J. E. Wells, Kenneth Watson, E. M. Gamble, J. R. Hanna, G. H. Henry, J. H. Stephens, L. R. Brumberg, Wilfreda D. C. T. Piggott, H. S. North, and Christina M'Donald.

*Surgery.*—*R. R. Woods, J. K. Harper, George M'Donald, G. M. Smith, Ethel M. Weir, J. H. Stephens, G. H. Henry, A. R. Ewart, Isidore Isaacson, R. M. Moore, C. E. G. Nunns, Izaak le Roux, and C. P. Wallace.

*Midwifery.*—*A. A. Morgan, *H. R. F. Tweedy, R. I. G. Reid, Marie M. E. Lea-Wilson, H. J. Robinson, J. K. Harper, H. E. Knott, F. G. Stewart, C. R. Harris, Julius Horwich, R. F. W. K. Allen, William Crawford, G. W. F. Pratt, D. F. Walsh, A. C. G. Ffolliott, F. O. W. A. Mahon-Daly, Julius Sayers, H. S. Smithwick, Nora A. Stack, E. S. Adderley, J. E. Wells, E. C. Hicks, and G. Q. Chance.

* Passed on high marks.

FINAL DENTAL EXAMINATION.

R. W. Mather and G. M. Titterington.

DIPLOMA IN GYNÆCOLOGY AND OBSTETRICS.

Ann Macleod.

UNIVERSITY OF CAMBRIDGE.—By the death of the widow of the Rev. John Henry Ellis, who died in 1912, the University has become entitled to a bequest of approximately £65,000, which can be used for general purposes.

UNIVERSITY OF LIVERPOOL.—The late Emeritus Professor W. Thelwall Thomas has left £5000 to the University of Liverpool to endow a Fellowship in Surgical Pathology.

UNIVERSITY OF DURHAM.—The Chancellor of the University of Durham, the Earl of Durham, has appointed Sir Thomas Oliver, M.D., F.R.C.P., President of the College of Medicine, Newcastle-on-Tyne, to be Vice-Chancellor of the University.

UNIVERSITY OF EGYPT.—Mr. P. C. Raiment, M.R.C.S. Eng., has been appointed to the chair of physiology in the State University of Egypt at Cairo. Dr. Raiment, who took first-class honours in the natural science schools at Oxford, has been for the last six years university demonstrator in biochemistry at Oxford. He will leave at the end of this year.

BRITISH INSTITUTE OF PHILOSOPHICAL STUDIES.—A meeting will be held at the Royal Society of Arts, 18, John-street, Adelphi, London, W.C. 2, on Tuesday, Dec. 13th, at 8.15 P.M., when Prof. T. P. Nunn will lecture on Anthropomorphism in Science.

CONFERENCE ON ACTINOTHERAPY.—An international exhibition and conference organised by the *British Journal of Actinotherapy* will be held at the Central Hall, Westminster, from Tuesday, Dec. 13th, to the following Friday. Particulars may be found in THE LANCET, Dec. 3rd (p. 1196), and invitation tickets can be obtained from the office of the journal at 17, Featherstone-buildings, London, W.C. 1.

HOSPITAL ADMINISTRATION.—A three months' course of lectures and demonstrations on clinical practice and in hospital administration will be given at the North-Eastern Hospital, St. Ann's-road, London, N. 15, by Dr. F. H. Thomson, the medical superintendent, on Mondays and Wednesdays at 4.45 P.M., and alternate Saturdays at 11 A.M., beginning on Wednesday, Jan. 4th, 1928. Particulars may be had from the clerk to the Metropolitan Asylums Board, Victoria Embankment, E.C. 4.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Monday, Dec. 12th, at 5 P.M., at the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W., Mr. Ernest Clarke will give a lecture entitled Practical Hints in the Correction of Errors of Accommodation and Refraction of the Eye. This lecture is free to members of the medical profession. In January courses will be held in medicine, surgery, and the specialties at the Prince of Wales's General Hospital; in cardiology at the National Hospital for Diseases of the Heart (limited to 20); in diseases of children at the Children's Clinic; and in psychological medicine at the Bethlem Royal Hospital. Information, syllabuses of special and general courses, and tickets may be had from the Secretary of the Fellowship, 1, Wimpole-street, London, W. 1.

CANCER HOSPITAL.—The committee of the Cancer Hospital in the Fulham-road is appealing for money for extensions, the first part of which will be wards for "middle-income" patients who can contribute to their upkeep.

NOTTINGHAM GENERAL HOSPITAL.—At the 145th anniversary meeting of the governors it was stated that one-half of the population of the city and county subscribes in some way or other to the funds of the hospital.

BUXTON COTTAGE HOSPITAL.—The Duke of Devonshire has given the necessary land for the extension of the Buxton and District Cottage Hospital. The new wing, with day wards for children and provision for sunlight treatment, will cost about £6000.

LONDON SCHOOL OF MEDICINE FOR WOMEN: ANNUAL DINNER.—The annual dinner of the London (Royal Free Hospital) School of Medicine for Women was held on Thursday, Dec. 1st, at the Savoy Hotel, Dr. A. G. Phear, the senior physician to the hospital, presiding over a large gathering, 414 diners being present. As the annual function was originated by Dr. Phear the fine attendance was fitting. Dr. Phear, in giving the Royal toasts, reminded the audience of the recent honour done to the hospital by the Queen, who opened the new children's ward.

The toast of Prosperity to the School and Hospital was proposed by Sir William Beveridge, Vice-Chancellor of the University of London and Director of the London School of Economics, who said that, apart from the drawback of having to make an after-dinner speech, he was delighted to address such an audience as was present. He would confine his remarks to the relations which the school bore to the University of London, leaving the details of progress in hospital and school to be stated in the reply from the chairman. The school, which had been and was splendidly successful, formed, he said, an integral part, more than any other of the medical schools of the metropolis, of the University of London, which was the largest University in the Kingdom and the first to recognise in any full way the claims of women upon university teaching. He considered that the acquisition of the Bloomsbury site was of the highest importance for the life of the University, and he hoped that, when that site was properly defined and when suitable buildings were placed upon it, the whole area would be transformed into an academic quarter. London, he pointed out, had a Government quarter in Whitehall and a commercial quarter in the City of London and the docks; Bloomsbury with its fitting university buildings would form an academic quarter. And of those buildings he hoped that one of the first to be erected would be a great hall of assembly, in which the University could hold its receptions and celebrations and accommodate hospitable gatherings like the present one, while it would be convenient for such recreative purposes as examinations. He wished both the school and the hospital all prosperity.

Dr. Phear, who warned speakers to follow him that the ideal duration of an after-dinner speech was ten minutes, noted the acquisitions during the year to the staff as having been unusually numerous, while in reference to their losses he spoke in warm terms of the great and quiet services which had been rendered by their late chairman, Dr. Alfred Langton. Langton had given of his personal means, seeking neither reward nor recognition, resembling in both respects their late and lamented friend, Dean Aldrich-Blake. With regard to the academic successes of the school he said that they were monotonous and sometimes to himself, as to his colleagues at the hospital, amazing. Considered from the point of view of hospital workers, the students in the school, and their teachers also, appeared to have abundance of time for recreation. He showed, however, that he thought opportunities for recreation should go hand-in-hand with work, for he pointedly referred the question of certain lawn-tennis courts, to be used by the staff of the hospital as well as by the school, to the kind consideration of the chairman of the hospital, Lord Riddell, who was present.

The toast of the numerous guests was proposed by Dr. Gertrude Dearnley, gynæcological surgeon to the hospital, who confessed to an ingenious method of dealing with the difficulty of numbers. She had, she said, drawn the names of the guests from a hat and proposed to deal with them in the order in which those names had emerged so as to avoid invidiousness, for all the guests fell under the one category of being the friends of the Royal Free Hospital and of the school attached. She ran through the list with kindly comment and coupled the toast with the names of Sir StClair Thomson and Lady Greenwood, when both the responses were made on humorous lines.

The health of the chairman was proposed by Dr. Janet Aitken, who mentioned Dr. Phear's support for 25 years of the Choral Society, as one of his many claims to their gratitude. After a brief reply from Dr. Phear the company adjourned to the neighbouring ball-room, where a dance had been arranged. This proved a fitting close to a thoroughly pleasant function.

A LEAGUE OF SUBSCRIBERS.—Since the League of Subscribers to Edinburgh Royal Infirmary was started in 1919 the total sum obtained by its efforts is £159,000. There are now 1418 contributing groups, 1034 of which are in Greater Edinburgh.

AUSTRALIAN AND NEW ZEALAND MEDICAL ASSOCIATION.—The winter dinner of this association in England will be held on Dec. 16th, at 8 P.M., at the Trocadero Restaurant, Piccadilly. The High Commissioners for Australia and New Zealand will be the official guests. The hon. secretaries are Mr. E. T. C. Milligan and Mr. H. Bedford Russell, 86, Harley-street, London, W. 1.

MIDDLESEX HOSPITAL.—The annual report states that there were 5319 admissions in 1926, that the average stay of patients was 22 days, and that the average cost per in-patient was £15 15s. 9d. The new cases treated in the out-patient department numbered 45,457, and the out-patient attendances were 197,825. The income was £82,113, and the expenditure £97,315. The first part of the reconstruction scheme has cost over £400,000.

# Parliamentary Intelligence.

## NOTES ON CURRENT TOPICS.

### FUTURE OF VOLUNTARY HOSPITALS: IMPORTANT ANNOUNCEMENT.

ON Thursday, Dec. 1st, in the House of Commons, Mr. Roy WILSON asked the Minister of Health whether, in his proposals for the reform of the Poor-law and reorganisation of the health services of the country, he contemplated that the voluntary hospitals should or would come under the control of the State or the local authorities.

Mr. CHAMBERLAIN replied: No, Sir, on the contrary I regard the preservation of the Voluntary Hospital system as a matter of essential importance in the health interests of the country. What has been impressed on my mind is the absence as a general rule at present of any systematic arrangements for coöperation in the various areas of the country between the voluntary hospitals and the hospitals and institutions carried on by the local authorities. I have, therefore, suggested that it is advisable that there should be consultation in the various areas with a view to arriving at an agreed plan for institutional provision which would enable each kind of hospital to play its proper part in meeting the ever-increasing need of the people for hospital accommodation. I should anticipate that under such a plan the position of the Voluntary Hospitals would be strengthened and not weakened, but I have never contemplated putting any compulsion upon them to come into an arrangement, their participation in which would be a matter for their own determination.

Mr. WILSON: In view of the widespread apprehension in the minds of those responsible for voluntary hospitals in this country, who hold the impression, rightly or wrongly, that the right hon. gentleman does mean to bring voluntary hospitals in some way under the local authorities, will he be good enough to give the widest publicity possible to the very important statement which he has made in answer to my question?—Mr. CHAMBERLAIN: I hope the fact that I have made the statement will have the effect of giving wide publicity to it.

Mr. MONTAGUE: Why does the right hon. gentleman say that the health interests of the country are bound up with the voluntary system?—Mr. CHAMBERLAIN: That is rather a big question to be dealt with by question and answer.

Mr. BARKER: Is the right hon. gentleman aware that the voluntary hospital at Blaina is almost closing for want of funds, and in these cases in necessitous areas will his Department relieve the hospitals?

Mr. LUNN: Has the right hon. gentleman considered the dreadful financial position of voluntary hospitals in many parts of the country to-day and the failure of voluntary hospital boards to extend to meet the requirements of the many waiting patients; and will the Government consider giving further funds to the Cave Commission so that they can further assist voluntary hospitals in their difficulties?—Mr. CHAMBERLAIN: I think a review of the circumstances of voluntary hospitals during the past 12 months will show that they have responded in an astonishing manner to the requirements of the country, and while at one time it did appear to be impossible for them to meet the need for extension, they are, I am very glad to say, now largely overcoming that difficulty; and not only have they been able to find in most cases sufficient money for the maintenance of the existing beds, but they have even been able to make very considerable additions.

### MEDICAL PRACTITIONERS' PRIVILEGE.

The text of Dr. GRAHAM LITTLE's Bill to provide that certain communications between medical practitioners and their patients shall be privileged from disclosure in evidence, has now been issued. It runs as follows:—

1. Any information obtained by a duly registered medical practitioner from any patient treated for venereal disease under a scheme approved in pursuance of Article 11 (2) of the Public Health (Venereal Diseases) Regulations, 1916, S.R. & O., 1916 (No. 467), shall be regarded as confidential, and shall be privileged from disclosure in a court of law: Provided that the information obtained shall have been obtained for the purpose of a cure, or assisting in a cure, of a person so treated: And provided also that this privilege shall not extend to any communication made with the object of committing or aiding in committing any fraud or crime.

2. For the purpose of this Act "duly registered medical practitioner" shall mean a person whose name is on the "Medical Register."

3. This Act shall be called the Medical Practitioners' Communications Privilege Act, 1927.

The Bill was read a first time on Nov. 22nd.

## HOUSE OF LORDS.

### MONDAY, DEC. 5TH.

### CLEARANCE OF SLUM AREAS.

The Bishop of SOUTHWARK asked His Majesty's Government when they proposed to introduce legislation to facilitate the clearance of slum areas. He said that it had been understood that the policy of the Ministry of Health and the Government has been first to build new houses and then when sufficient new houses had been built to deal with slum areas. They were all bound to acknowledge that so far in this policy the Government had been most successful. Over a million houses built since the war was an achievement which did great credit to the Minister of Health and those working with him, but it was just because so many houses had been built that it was now opportune to ask when steps would be taken to deal with the slum areas. The slums of the country were so large in extent and so terrible in their conditions that they might very easily prove a real menace to the welfare of the nation. The London County Council had schemes relating to 91 acres which would affect 25,000 people. But quite apart from the people who would be affected by these schemes, it was estimated that there were no fewer than 11,500 houses which were insanitary and contained a population of over 100,000. Some figures could be obtained from the annual statistics of the medical officers of health. In the borough of Southwark there were 10,000 houses, in the borough of Deptford 4000 houses, in the borough of Battersea 3000 houses, and in the borough of Westminster 841 houses, which were not in all respects reasonably fit for occupation. A large number of them were insanitary. Out of London in such towns as Bristol, Liverpool, Glasgow, Nottingham, Bradford, and Leeds the conditions were just as serious. From statements he had received from competent observers in his diocese he could cite a case of one street of 23 houses in which all the houses were overcrowded. The existence of slums meant that a very large portion of the population had to grow up under conditions in which health was almost impossible, in which the education of the elementary schools was thrown away, where home-life could not be really experienced, and where character as well as physique was almost bound to deteriorate. He thought that they were bound to admit that there were some people who had what was called "the slum mind." They could not wonder at it, when people had been born and brought up in these surroundings. But those who knew the facts best were prepared to testify that these were after all in a small minority. Move people into better surroundings, give them a better chance, and almost at once they would see a change. He admitted that local authorities already possessed large powers in regard to slum clearances and that in a number of cases they were using their powers admirably. But when they had taken into consideration everything that had been done the fact still remained that the greater part of the slums remained untouched. At the present rate of progress another generation would grow up and die in the slums, and new slums would have been created before the old slums had been abolished. Apparently a large number of authorities were taking no steps whatever to deal with the slums. He knew that the difficulties in the way of local authorities were great. The cost of slum clearance was very great, and the local authorities, which as a rule had the greatest problem in this respect were those which were financially the least able to meet it. It might be necessary to adopt some temporary measure which, while recognising that slum clearance was the ideal solution of the problem, would enable people to live in or near their present homes under different conditions.

The Bishop of LONDON said he attributed a great deal of social unrest in the country to bad housing conditions. Overcrowding was the parent of disease. He hoped to hear from the Government that they fully realised the appalling nature of the problem and would give all the help they could towards solving it.

Viscount GAGE, Lord-in-Waiting, replying on behalf of the Government, said that although the efforts of the Government and local authorities since the Armistice had been mainly concentrated on the provision of new houses, it must not be thought that the clearance of slum areas had been entirely neglected. In fact the progress made, having regard to the difficult circumstances, could be described as encouraging. Since the Armistice 105 schemes had been confirmed by the Minister of Health and others were under consideration. In the 24 years prior to the war—that was after the passing of the Housing Act of 1890, which gave local authorities the power to deal with slums—only 44 reconstruction schemes dealing with small areas were confirmed. The schemes, which had been confirmed since the end of the war, were spread over England and Wales and involved the demolition of a considerable number of properties and the provision of new houses for a large number of people. The London County Council had been particularly energetic in tackling the slum problem and had a definite programme in operation under which the worst areas were being dealt with in order of urgency. They had made substantial progress since 1919. Eleven schemes of considerable magnitude had been confirmed. In addition to this the City Corporation and the metropolitan boroughs had received confirmation of a further 12 schemes, making in all 23 schemes for the metropolis. Other large schemes were also under consideration for London. An Exchequer subvention of one-half of the estimated average annual loss on slum schemes, including the cost of rehousing, was available for local authorities who undertook schemes. Apart from the wholesale clearance of large slum areas it should not be forgotten that local authorities were paying constant attention to the condition of individual houses in their districts. He would like to quote some figures regarding the remedial work done which were taken from the reports of the medical officers of health for 1925. There had been 1,114,000 houses inspected by officers of the local authorities. Of these 244,000 were rendered fit by the owners after service of statutory notices; 5000 were made fit by the local authorities in default of the owners, and defects were remedied in the case of 279,000 houses without the need of formal action. Thus the local authorities were able to secure repairs in 528,000 cases during the year. He was authorised by the Minister of Health to state that he considered that this problem must be tackled in a much more comprehensive manner if any considerable improvement was to be effected within a reasonable time. There was no doubt that the very large numbers of new houses which were now being completed annually must ultimately—and it was hoped in the near future—relieve the overcrowding problem; and the time should not be far distant when local authorities would be in a position to turn their attention in a greater degree to the slums. The Minister had come to the conclusion that although the powers of local authorities for dealing with slums at present were wide and far-reaching it might be possible to introduce a further measure which should be practical and effective in helping those people who were now living in such unsatisfactory conditions. The scheme which was at present under consideration was one whereby houses in an unsatisfactory area which might be saved by the expenditure of a little money would be reconditioned, and only houses which were past redemption would be demolished. By the judicious use of powers on these lines a bad area might be opened up and improvements effected in a much shorter time than it would take to clear the whole area and rehouse the whole population of the area. Another matter on which the Minister had promised to legislate was in regard to the basis of compensation payable for insanitary property acquired in connexion with slum schemes. The Minister was not at present in a position to indicate precisely the time or the nature of the legislation; but the matter was receiving most earnest consideration, and the Minister would make a statement on the subject when his proposals were in a more definite form.

### TUESDAY, DEC. 6TH.

#### *Course of Parliamentary Business.*

The Marquess of SALISBURY, Lord Privy Seal, in the course of a statement as to the Parliamentary business which the Government hoped to get through before Christmas, said that in addition to the principal Government measures there were one or two other smaller Bills which it would, no doubt, be in the interests of the country to get through if possible. He spoke of them only in a doubtful sense, but these measures included the Road Transport Lighting Bill, the Mental Deficiency Bill, and the Nursing Homes Bill. These Bills were not yet through the House of Commons,

but if they were quite non-contentious in their Lordships' House, perhaps the Government might ask them to agree to them.

*Royal Edinburgh Hospital Bill.*

The Royal Edinburgh Hospital for Mental and Nervous Diseases Order Confirmation Bill was read a third time and passed.

## HOUSE OF COMMONS.

WEDNESDAY, NOV. 30TH.

*Trade in Derivative Drugs.*

Mr. DAY asked the Secretary of State for Foreign Affairs which members of the Council of the League of Nations had ratified the suggestion that a central board should be established to assess and ration the trade in derivative drugs.—Sir A. CHAMBERLAIN replied: The appointment of a Permanent Central Board to "watch the course of the international trade" in opium and other dangerous drugs is provided for in Chapter VI., Articles 19 to 27 of the Geneva Opium Convention of 1925. A ratification of that Convention has been deposited on behalf of His Majesty covering all parts of the British Empire other than Canada and the Irish Free State. Of the other States at present members of the Council only France and Poland have ratified.

*Treatment of Rheumatism.*

Mr. HARDIE asked the Minister of Health whether he could give any indication by figures as to the number of people suffering from rheumatism; and whether he contemplated establishing treatment similar to that provided for tuberculosis.—Sir KINGSLEY WOOD, Parliamentary Secretary to the Ministry of Health, replied: As regards the first part of the question I do not think it practicable to give figures for the general population, though I may say that the annual rate of attack for rheumatism of all kinds among the insured population was estimated in 1924 as 27 per 1000. As regards the second part of the question, some progress is being made in the larger cities towards the provision of treatment for patients of certain classes, especially children, suffering from acute and subacute rheumatism. Such schemes are being carefully watched by my officers, but as at present advised, my right hon. friend would not feel justified on public health grounds in contemplating treatment of rheumatism by means of a general scheme on the lines of that adopted for tuberculosis.

*Poor-law Guardians and Isolation Wards.*

Mr. GROVES asked the Minister of Health whether he was aware that the Lambeth board of guardians reported, in July, 1920, that they could offer no suggestion which would secure the provision of suitable accommodation for isolation and observation purposes; and whether as no steps had yet been taken to comply with the requests of his department, he proposed to take any action, and, if so, what.—Sir KINGSLEY WOOD replied: My right hon. friend has been in correspondence with the board of guardians over a considerable period in regard to the provision of isolation wards in their infirmary. The guardians have not, at present, seen their way to make this provision, and they decided recently, after an investigation by a committee, to defer further consideration of the matter for six months. The question of the action to be taken is receiving my attention, and my right hon. friend is obtaining a report on the present position from one of his medical officers.

*Early Notification of Tuberculosis.*

Dr. VERNON DAVIES asked the Minister of Health if he was satisfied with the present position in regard to the early notification of tuberculosis in this country; and, if not, whether he proposed to take any steps to impress upon medical practitioners and the community the vital importance of early notification of this disease both to the public health and to the patient.—Sir KINGSLEY WOOD replied: My right hon. friend is not yet satisfied that the early notification of tuberculosis has been secured in all parts of the country. Circulars have already been issued by my right hon. friend's department to medical practitioners and local authorities on this subject, and the present position is described on pages 40 and 41 of the last Annual Report of the Department. The position will be again considered on the receipt of the notification returns for the present year.

*State Payments to the G.M.C.*

Mr. BECKETT asked the Minister of Health what State payments were made to the Medical Council during 1926; and for what purpose.—Major Sir G. HENNESSY replied: I am informed by my noble friend, the Lord President of the Council, that no State payments were made to the General Medical Council during 1926; as a matter of fact, no State payments are made to that body.

*Foot-and-Mouth Disease and Public Health.*

Dr. VERNON DAVIES asked the Minister of Agriculture if he was aware that, for the sake of the public health, the authorities of the United States of America had placed restrictions upon the import into that country of South American meat from sources infected with foot-and-mouth disease; and would he consider the desirability of discussing this aspect of the question with the Minister of Health, so as to be sure that the health of the people of this country was adequately safeguarded.—Mr. GUINNESS replied: An order was issued by the United States Department of Agriculture on Sept. 17th, 1926, which prohibits the importation of fresh or frozen beef, veal, mutton, lamb, or pork from countries in which rinderpest or foot-and-mouth disease exists, in order to prevent the introduction of the contagion of such diseases into the United States. The order appears to be designed to protect animals, because human beings do not suffer from rinderpest. I am informed by my right hon. friend the Minister of Health that practically all meat imported into Great Britain from South America is examined and passed by Government inspectors of the countries of origin, and is subject to further inspection on arrival in this country.

Dr. DAVIES: Is it the opinion of the Ministry of Agriculture that there is no danger to human beings in allowing meat which may be contaminated with foot-and-mouth disease to come into this country?—Mr. GUINNESS: As the practice is to cook meat before people eat it I do not think that there is much danger. The recorded cases of foot-and-mouth disease have been traced to milk or contact with diseased animals. I do not think there is any evidence in the case of cooked meat.

THURSDAY, DEC. 1ST.

*Pensioners and Hospital Deductions.*

Mr. MELLER asked the Minister of Pensions whether he was aware that it was the practice in calculating the amount deducted from pensions in respect of hospital treatment, for the period during which the recipient was undergoing such treatment, to count broken periods of less than a week as a full week; whether he had received complaints in respect of such deductions; and whether he would take steps to see that in future such deductions were only made for the appropriate number of days of the broken period.—Major TRYON replied: Payments under Article 6 of the Royal Warrant and any necessary adjustments in connexion with them are made on a weekly basis. I am satisfied that this practice which has always obtained under the warrant is on the whole of advantage to pensioners and makes for convenience of administration. I am looking into the working of the rule in exceptional cases of the type which my hon. friend has brought to my notice.

Mr. R. MORRISON: Is the right hon. gentleman aware that in some cases when a man is in hospital for nine days a fortnight's allowance is deducted. Is that not rather unfair?—Major TRYON: It is not, as a rule, a case of deduction. In the great majority of cases the men in hospital are better off financially than those not in hospital.

*New Health Insurance Legislation.*

Sir RICHARD LUCE asked the Minister of Health whether he was now in a position to make any statement as to the steps to be taken to give effect to the recommendations of the Royal Commission on National Health Insurance and, in particular, those relating to the abolition of insurance committees and the provision of a specialist and consultant medical service for all insured persons by means of a partial pooling of future surpluses of approved societies.—Mr. CHAMBERLAIN replied: The various recommendations of the Royal Commission have now been exhaustively discussed with the Consultative Council of Approved Societies, and it is intended pursuant to that discussion to take the first convenient opportunity of introducing an amending Health Insurance Bill embodying most of the recommendations of the Royal Commission. It is not, however, proposed to provide in this Bill for the abolition of insurance committees or for the extension of medical benefit to include a specialist and consultant service by means of a partial pooling of societies' surpluses.

*Food Value of Fresh Milk.*

Mr. HURD asked the Minister of Health whether, in the interests of public health, he would take measures to give the widest publicity to the high food value of fresh liquid milk for adults as well as children, as compared with machine-skimmed condensed milk.—Mr. CHAMBERLAIN replied: I should be glad to see an increased consumption of fresh liquid milk, on account of its high nutritional value, and I am assured that a potent factor in bringing this about is to continue to improve its cleanliness, wholesomeness, and general acceptability. A publicity campaign is at present being conducted on the subject, with which I am fully in sympathy, and I may also say that I understand that the

Empire Marketing Board have the question of milk publicity under consideration at the present time.

*Inspections under Food and Drugs Act.*

Dr. VERNON DAVIES asked the Minister of Health if he would give for the last three years for which statistics were available the number of inspections under the Food and Drugs Act; the number of samples analysed; the percentage of adulterations; and the number of prosecutions in England and Wales.—Mr. CHAMBERLAIN replied: I have no record of the number of inspections made or prosecutions undertaken under the Sale of Food and Drugs Acts. The following is a statement showing the number of samples analysed under the Acts, the number reported to be adulterated and the percentage of adulterations in England and Wales for each of the calendar years 1924, 1925, and 1926.

*Sale of Food and Drugs Acts.*

| | 1924. | 1925. | 1926. |
|---|---|---|---|
| No. of samples analysed | 118,000 | 118,930 | 120,617 |
| No. of samples adulterated | 6,987 | 7,714 | 7,044 |
| Percentage of samples adulterated | 5·9 | 6·5 | 5·8 |

MONDAY, DEC. 5TH.

*Provision of Meals of School-children.*

Sir WILLIAM EDGE asked the President of the Board of Education whether, according to advices which had reached him, special efforts would be needed this winter in feeding children at school; and whether he had issued any circular on the subject to local authorities.—Lord E. PERCY replied: No, Sir; generally speaking, the returns which are now being received from local authorities show the usual seasonal increase in the number of children provided with meals. The authorities appear to be watching the situation in their areas closely, and there does not seem to be any need to issue a circular.

TUESDAY, DEC. 6TH.

*Foot-and-Mouth Disease and South American Meat.*

Dr. VERNON DAVIES asked the Minister of Agriculture if any meat had arrived in this country from South America in recent years showing evidence of foot-and-mouth disease; if so, what representations, if any, had been made to the South American authorities as to the lack of efficiency of their inspection before shipment to this country; and if any such meat had escaped the vigilance of the inspectorate in this country at the port of arrival here.—Sir KINGSLEY WOOD replied: No instance of suspected foot-and-mouth disease in meat imported into this country from South America has been reported, although the inspectors at the ports of arrival have for many years examined meat for evidence of this disease. My right hon. friend is not aware of any authenticated evidence that meat affected with foot-and-mouth disease escaping the vigilance of the inspectors at the ports.

*Services of Tuberculosis Officers.*

Mr. DAY asked the Minister of Health whether his attention had been called to the special notice issued by the public health committee of the Devon county council to the effect that they wished to make it quite clear that the tuberculosis officers were absolutely free to all classes of the community, and that in no case could remuneration be made to them in any form; and whether there were any reasons for the issue of this notice.—Sir KINGSLEY WOOD replied: My right hon. friend is informed by the county council that their Public Health Committee have passed a resolution substantially in the terms stated by the hon. Member. A copy of the resolution has been sent to the officers concerned, but no other steps have been taken to make it public. My right hon. friend is informed that the resolution was passed because it was reported to the Committee that one or more of the tuberculosis officers of the county council had in fact received fees or presents from individuals visited by them in their capacity of tuberculosis officers.

*Deficiency of Fat in Condensed and Dried Milk.*

Brigadier-General CLIFTON BROWN asked the Minister of Health whether his attention had been drawn to a recent report of the Ministry of Health, which stated inter alia that several samples of condensed and dried milk were reported against as deficient in fat, and the analysis in one case indicated that the article sold as dried milk consisted of soya bean, cane sugar, milk sugar, and a vegetable oil; what action had been taken in the matter; and in what countries were these articles produced.—Sir KINGSLEY WOOD replied: The report in question is the annual report of the Ministry of Health for 1926–27. In the particular case mentioned the vendor was prosecuted and fined. Deficiency of fat was found in 26 of the 1310 samples of condensed and dried milks taken by local authorities. In three of the cases the vendor was prosecuted and fined and in other cases warnings were given. My right hon. friend has no information as to the country of origin of the samples taken.

# Medical Diary.

*Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.*

## SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Dec. 12th.—5 P.M., WAR. Paper: Wing Comdr. T. S. Rippon, R.A.F.: The Danger Instincts.

TUESDAY.—5 P.M., THERAPEUTICS. Discussion on the Action of Synthalin, to be opened by Dr. H. H. Dale and Dr. George Graham. Other speakers: Dr. R. D. Lawrence and Prof. H. MacLean. 8.30 P.M., PSYCHIATRY. Paper: Dr. Millais Culpin: A Study of the Minor Psychoses: their Clinical and Industrial Importance. NEUROLOGY. Members of the Section of Neurology are specially invited to attend this meeting.

WEDNESDAY.—LIBRARY. The main Library will close at 5 P.M., but readers will be accommodated in other rooms until 6.30 P.M. 8.30 P.M., SOCIAL EVENING. From 8.30 to 9 P.M. Fellows and guests will be received in the Library by the President and Lady Berry. At 9.30 P.M. Sir Alexander Houston, Director of Water Examinations, Metropolitan Water Board, will give an address entitled "The Romance of London's Water-supply," to be followed by demonstrations. A number of exhibits will be on view. Music and light refreshments.

THURSDAY.—5 P.M., DERMATOLOGY. (Cases at 4 P.M.) Cases: Dr. H. W. Barber: (1) Von Recklinghausen's Disease with the "Forme Fruste" in Three of the Patient's Children. Dr. H. MacCormac: (2) Xanthoma; (3) Chancre Redux with Negative Provocative Test. Demonstration: A polychromide film, showing the present possibilities of colour cinematography, will be shown after the discussion of the cases.

FRIDAY.—8 P.M., OBSTETRICS. Specimens: Dr. W. G. Barnard: (1) An Endotheliomatous Dermoid of the Ovary; (2) Sarcoma Arising in the Cervical Stump. Mr. Frederick Roques: Endometriomyoma of the Umbilicus. Prof. Beckwith Whitehouse: Menstruation Through a Laparotomy Scar for Twenty Years, Associated with Diffuse Endometriomatosis of Pelvic Cavity of Abdominal Wall. Paper: Mr. Burt-White: An Investigation into the Ætiology of Puerperal Sepsis. 8.30 P.M., ELECTRO-THERAPEUTICS. Papers: Mr. E. W. Twining: On Interlobar Pleurisy (with special reference to mediastino-interlobar effusion). Dr. C. G. Teall: A Radiological Study of the Bone Changes in Renal Infantilism.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Dec. 12th.—8.30 P.M., Discussion on Insomnia, to be introduced by Dr. Eustace M. Callender, followed by Dr. Gordon Holmes and Sir Maurice Craig.

CHELSEA CLINICAL SOCIETY.

TUESDAY, Dec. 13th.—8.30 P.M. (at the Hotel Rembrandt, Thurloe-place, S.W.), Mr. P. Jenner Verrall, Mr. A. G. Timbrell Fisher, and Mr. S. L. Higgs will open a discussion on Orthopædics in General Practice. The meeting will be preceded by dinner at 7.30 P.M.

WEST KENT MEDICO-CHIRURGICAL SOCIETY, Miller General Hospital, Greenwich, S.E.

FRIDAY, Dec.9th.—8.45 P.M., Mr. Victor Bonney: Puerperal Sepsis (Purvis oration).

EUGENICS SOCIETY.

WEDNESDAY, Dec. 14th.—8.30 P.M. (in the rooms of the Royal Society, Burlington House, W.), Sir Bernard Mallet: Problems for Research Arising out of the Population Conference.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Dec. 12th, to SATURDAY, Dec. 17th.—FELLOWSHIP OF MEDICINE. Lecture at Medical Society, 11, Chandos-street, Cavendish-square, W. Mon., 5 P.M., Mr. Ernest Clarke: Practical Hints in the Correction of Errors of Accommodation and Refraction of the Eye.—HOSPITAL FOR DISEASES OF THE SKIN, Blackfriars-road, S.E. Special course, afternoons only, second week. Tues., special demonstration by Dr. Haldin-Davis.—INFANTS HOSPITAL, Vincent-square, S.W. Afternoon course, second week.—WEST END HOSPITAL FOR NERVOUS DISEASES, 73, Welbeck-street, W. Last week of post-graduate course in neurology; every afternoon at 5 P.M. Further information from the Secretary, Museum 2236.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, W.

MONDAY, Dec. 12th.—10 A.M., Dr. Dowling: Skin Department. 11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Dr. Trevor Davies: Gynæcological Department.

TUESDAY.—11 A.M., Mr. Endean: Demonstration of Venereal Diseases. 2 P.M., Dr. Shaw: Medical Out-patients. 2 P.M., Mr. Sinclair: Surgical Out-patients.

WEDNESDAY.—10 A.M., Dr. Burnford: Medical Wards. 2.30 P.M., Mr. Donald Armour: Surgical Wards. 4.30 P.M., Mr. Donald Armour: Head Injuries (lecture).

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Mr. MacDonald: Genito-urinary Department. 2 P.M., Mr. Bishop Harman: Eye Department. 4.30 P.M., Dr. Pritchard: Intravenous Treatment (lecture).
FRIDAY.—10 A.M., Dr. Pritchard: Special Medical Treatment Clinic. 12 noon, Dr. Redvers Ironside: Clinical Demonstration. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Department.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy Department. 10 A.M., Dr. Owen: Medical Diseases of Children.
Medical and Surgical Out-patients, Operations, Special Departments, daily, 10 A.M. to 5 P.M., Saturdays, 10 A.M. to 1 P.M.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham.
WEDNESDAY, Dec. 14th.—4 P.M., Major Meurice Sinclair: Clinical Demonstration of Fracture Cases.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, Dec. 12th.—2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.
TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.
WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.
THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.
FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.
There will also be a special demonstration of medical cases on Mon., Dec. 12th, at 2 P.M., and of surgical cases on Fri., Dec. 16th, at 2 P.M., by Dr. A. J. Whiting and Mr. E. Gillespie respectively.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.
TUESDAY, Dec. 13th.—3.15 P.M., Dr. A. Lisle Punch: Asthma.

BELGRAVE HOSPITAL FOR CHILDREN, 1, Clapham-road, S.W.
WEDNESDAY, Dec. 14th.—4.30 P.M., Clinical Meeting, conducted by Dr. M. S. Thomson.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.
WEDNESDAY, Dec. 14th.—4 P.M., Demonstration of Interesting Cases.
FRIDAY.—4 P.M., Mr. Watkyn-Thomas: Pre-cerebellar Cysts.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Dec. 13th.—5 P.M., Dr. S. E. Dore: Erythemato-squamous Eruptions.
THURSDAY.—5 P.M., Pathology Demonstration.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.
TUESDAY, Dec. 13th.—4.15 P.M., Mr. H. H. Rayner: Surgical Diathermy.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.
FRIDAY, Dec. 16th.—3.30 P.M., Dr. Grout: Radiology in Diagnosis.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH, St. Andrews.
TUESDAY, Dec. 13th.—4 P.M., Prof. R. Muir: The Dissemination of Malignant Disease, with special reference to the Abdomen. Discussion to be opened by Dr. J. Anderson.
FRIDAY.—4 P.M., Case Reading and Discussion, in which all medical practitioners are invited to take part.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, Dec. 14th.—4 P.M., Prof. E. W. Hope: The Changed Conditions of Quarantine.

PEOPLE'S LEAGUE OF HEALTH.
THURSDAY, Dec. 15th.—6 P.M. (at 11, Chandos-street, Cavendish-square, W.), Dr. H. Crichton-Miller: Development and Function of Mind.

# Appointments.

BROOKE, R., M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Hon. Orthopædic Surgeon to the Royal West Sussex Hospital.
COMBE, W., M.B., Ch.B. Glasg., Certifying Surgeon under the Factory and Workshop Acts (Snodland District, Kent).
HALL, G., M.D., F.R.C.P. Lond., Honorary Physician, Royal Victoria Infirmary, Newcastle-on-Tyne.

# Vacancies.

*For further information refer to the advertisement columns.*

*Ancoats Hospital Convalescent Home, Great Warford, Alderley Edge.*—Hon Visiting Phys. £50.
*Barnsley, Beckett Hospital and Dispensary.*—Sen. and Jun. H.S.'s. £220 and £140 respectively.
*Basingstoke, Park Prewett Mental Hospital, nr. Basingstoke, Hants.*—Med. Supt. £950.
*Birmingham and Midland Homœopathic Hospital and Dispensary.* H.S. £150.
*Birmingham Union, Dudley-road, and Selly Oak Hospitals.*—Pathologist. £750.
*Bolton Infirmary and Dispensary.*—H.S. £150.
*Chichester, Graylingwell Mental Hospital.*—Jun. M.O. £300.
*Croydon County Borough.*—Asst. M.O.H. for Tuberculosis. £750.
*Derby, Derbyshire Royal Infirmary.*—H.S. for Ear, Nose, and Throat Dept. £150.
*Dreadnought Hospital, Greenwich.*—H.P. and H.S. Each at rate of £110.
*East Sussex Administrative County.*—County M.O.H. £1200.
*Exeter, Wonford House Hospital.*—Med. Supt.
*Exminster, Devon Mental Hospital.*—Jun. Asst. M.O. £300.
*French Hospital and Dispensary, 172, Shaftesbury-avenue, W.C.*—Asst. Pathologist. £100.
*Hampstead General and North-West London Hospital, Haverstock Hill, N.W.*—Cas. Surg. O. and H.S. Each at rate of £100.
*Hove Hospital, Sackville-road, Hove.*—Res. M.O. £150.
*Huddersfield Royal Infirmary.*—Jun. H.S. £150.
*Hull Royal Infirmary.*—Res. House Governor. £500.
*Infants Hospital, Vincent-square, Westminster.*—Pathologist. £600.
*Ipswich, East Suffolk and Ipswich Hospital.*—H.S. Also Cas. O. Each £100.
*Leeds General Infirmary.*—Gen. Manager.
*London Hospital, E.*—Cardiographic Dept. Paterson Research Scholar. £400.
*London Temperance Hospital, Hampstead-road, N.W.*—Cas. O. At rate of £120. H.P. At rate of £100. Med. Reg. 40 gns.
*Manchester, Ancoats Hospital.*—H.S. At rate of £100. Also Anæsthetists. 10s. 6d. per attendance.
*Manchester, Victoria Memorial Jewish Hospital, Cheetham.*—Hon. Asst. Phys.
*Miller General Hospital for South-East London, Greenwich-road, S.E.*—H.S. £125.
*Nelson Hospital, Merton, S.W.*—Res. M.O. At rate of £100.
*Newcastle-upon-Tyne, Royal Victoria Infirmary.*—Hon. Asst. P.
*Portsmouth Royal Hospital.*—Cas. O. At rate of £100.
*Prison Medical Service.*—M.O., Class II. £350.
*Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.*—H.P. At rate of £100.
*St. Pancras Hospital, &c.*—Jun. Asst. Med. Supt. £350.
*St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.*—Clin. Assts.
*St. Thomas's Hospital.*—Phys.
*Salford Royal Hospital.*—Res. Surg. O. £200. Also two H.S.'s, H.P., and Cas. H.S. Each at rate of £125.
*Sheffield, Children's Hospital.*—Res. H.S. £100.
*Sheffield, King Edward VII. Hospital, Rivelin Valley-road.*—H.S. At rate of £75.
*Shrewsbury, Royal Salop Infirmary.*—H.S. £200.
*Torquay, Torbay Hospital.*—Res. M.O. £200.
*Western Ophthalmic Hospital, Marylebone-road, N.W.*—Sen. and Jun. Non-Res. H.S.'s. At rate of £150 and £100 respectively.
*Willesden General Hospital, N.W.*—Vacancy on Hon. Med. Staff.
*Wolverhampton and Staffordshire Hospital.*—Resident Anæsthetist. At rate of £100.

The Chief Inspector of Factories announces a vacant appointment for a Certifying Factory Surgeon at Folkestone (Kent).

# Births, Marriages, and Deaths.

## BIRTHS.

GRANT.—On Nov. 27th, at Barkston-gardens, S.W., the wife of Major J. F. Grant, R.A.M.C. (retired), of a daughter.
HILL.—On Dec. 1st, at Dalestead, Caterham Valley, Surrey, the wife of F. T. Hill, M.C., M.R.C.S., M.R.C.P., of a son.
TURNER.—On Nov. 26th, the wife of Terence Turner, M.R.C.P., of The Bolt, Windsor Forest, of a daughter.
VEVERS.—On Nov. 22nd, at "Lavalance" Nursing Home, the wife of Oswald H. Vevers, M.R.C.S., L.R.C.P. Lond., of a son.

## MARRIAGES.

JACK—DARLING.—On Dec 1st, at St. George's U.F. Church, Edinburgh, Donald Jack, L.R.C.P. & S., to Anne, younger daughter of the late Dr. T. Brown Darling, Edinburgh.
THUNDER—NORTHALL-LAURIE.—On Nov. 26th, at St. James', Spanish-place, W., Wilfrid Michael Thunder, M.B., of Ipoh, Perak, F.M.S., to Eileen Frances, youngest daughter of the late Reginald Peter Northall-Laurie, and of Mrs. Northall-Laurie, of Albion-street, Hyde Park, W.

## DEATHS.

FOULDS.—On Dec. 4th, Francis Henry Foulds, M.R.C.S., L.R.C.P., of Severn House, Droitwich Spa, aged 59 years.
LOMBARDI.—On Nov. 28th, suddenly, George Lombardi, L.D.S. R.C.S. Eng.
NORBURN.—On Dec. 1st, following operation, Albert Norburn, M.D., B.S. Lond., of Oldfield Park Lodge, Bath.
PIGGOTT.—On Dec. 1st, at "St. Wilfrid's," Mill Hill, Sudbury, Suffolk, Edward Alfred Piggott, L.R.C.P., L.R.C.S. Edin., formerly of Clare, Suffolk, aged 78.

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Notes, Comments, and Abstracts.

## SPINNERS' SCROTAL CANCER.

### EXTRACT FROM ANNUAL REPORT FOR 1926.

BY JAMES ROBERTSON, M.B., C.M.GLASG., D.P.H.,
MEDICAL OFFICER OF HEALTH FOR DARWEN.

A Departmental Committee was appointed to "consider evidence as to the occurrence of Epitheliomatous Ulceration among Mule-Spinners" and to report to the Home Office. Their Report was published and circulated in April, 1926,[1] about four weeks after my printed thesis dealing with this subject. The Committee asked me for a synopsis of my work and invited me to appear before them for discussion on June 17th, 1925. At that date the detailed work I was engaged in being incomplete, the final facts and conclusions stated in my thesis were not then arrived at. In so far as these completed facts and conclusions do not support the Report I feel it my duty to offer the following constructive criticism.

*Findings of the Departmental Committee.*

The Committee's Report is founded upon two principal arguments:

*First Argument.*—That of Mr. A. H. Southam and the late Dr. S. R. Wilson, of Manchester,[2] namely: (*a*) that as the spindles are oiled by mineral oil this oil is continuously sprayed on to the spinner's overalls in the region of the scrotum; (*b*) that as the spinner pieces his broken ends he must lean over the faller shaft; by so doing his scrotum comes into contact with this shaft, thereby causing friction. The oil, plus the friction, is the cause of the epithelioma.

*Second Argument.*—Dr. A. Leitch produced epithelioma upon mice by rubbing mineral oil into their backs.

From these two arguments it is concluded that oil is the cause of this disease. While I agree that mineral oil plus friction can be a cause of epithelioma, I feel satisfied that I have definitely proved that neither the faller shaft, the spindles, bolster, or any part of the mule take part as a factor in the causation of this disease. As regards the oiling of the spindles, the Committee's report and my observations agree as to the facts, but differ as to the conclusions to be drawn from them.

*Exposure to Mineral Oil.*

The Committee's Report (p. 17) says: "We have been struck by the different amounts of oil used in different mills on the same type of mule. This apparently varies from a minimum of ¼ pint to a maximum of slightly over 1 pint per mule per day. We would suggest that in the interests of economy and of cleanliness attention should be paid to reducing this to the minimum compatible with efficient lubrication. Our experiments show that owing to centrifugal action a large proportion of this oil is sprayed off during the first few minutes after starting the machinery, but that occasional drops are still being thrown off after two or even three hours. The oil is thrown from that portion of the bare spindle immediately above the bearing, and normally oil does not appear to creep more than about 1/16 or ¼ inch up the spindle."

In my thesis I detailed experiments of repeated tests which definitely established that all oil which is to be sprayed off comes off within the *first three seconds*, and that the spinner cannot possibly be in a position to get any of this spray upon his overalls. Apparently no actual tests were made by the Committee as they are content to say "the first few minutes." The quantity of oil thrown off in three seconds has been found, by my experiments, to be actually more than the Committee in their Report (p. 18) states is thrown off—namely, my finding 1/10th of a pint per day per mule instead of the Committee's finding of 1/13th of a pint.

The Report further states: "That a quarter to one pint of oil per mule per day is used in the oiling and there are two oilings." There are 9600 minim drops in one pint. On the Committee's smallest computation, therefore, of ¼ pint of oil per mule per day there would only be 2400 minim drops per mule per day or 1200 at each oiling, and as there are 1320 spindles (p. 18) per mule, this means that each spindle would get less than a drop per oiling, and if one takes it at ½ pint per mule per day it would still be less than two drops per oiling, and as the spindles are revolving at 11,000 revolutions per minute it is difficult to take seriously the suggestion that these two drops or any part could be sprayed off for hours.

It must be remembered also that, when the oil is being sprayed off, that portion which is being sprayed towards the worker is only a quarter of the total spray circle. An equal amount will be sprayed off, of course, within the first three seconds towards the creel and to the right and left. I therefore contend that no oil can reach the spinner from the bolster or any part of the mule. My photographs further show very definitely that under no working conditions does the man's scrotum touch the faller shaft.

It may be stated that the whole theory of the faller shaft coming into contact with the spinner during the process of piecing breaks down in association with the spinners themselves. It is learned from them that when piecing is taking place to touch the faller shaft involves a loss of balance, and this happens to none except beginners. Just as the writer of the Committee's Report uses the phrase "first few minutes," in regard to the oil spray, so (p. 16) he states that the height of the bolster above the floor level is 2 feet 6 inches, whereas the exact height is 2 feet 3½ inches. This is material to our discussion, as if oil did spray from the bolster at a height of 2 feet 6 inches it would be at the scrotal level, but at 2 feet 3½ inches it is below the scrotal level. It is sufficient to say that all spinning mules are standardised.

As I have shown, the spinning mule can take no part as a factor in this disease, recommendations 2 and 3 given in the Report (p. 27) will add to expense and serve no purpose. These recommendations are: "(2) Development of a non-splash type of spindle bearing, more particularly for new mules; (3) prevention of oil splash from the spindles of existing mules by means of some form of guard, the type to be decided by a series of tests to be mutually agreed upon and arranged by the Masters' Federation and the Operative Spinners."

Although I have demonstrated that oil is not thrown on to the spinner from the spindles, oil however is found upon the overalls in two areas—namely, at the knees and down the flanks or thighs. This oil is received from the floor during the process of repairing any defects which may happen to the working parts of the mule. The spinner kneeling to carry out these repairs receives the oil direct upon his knees and when finished he wipes his hands down his flanks to dry off the oil before he does any piecing, as he must not oil-stain any thread. Most of the oil, however, is *received each Saturday morning* when the spinner has to clean every part of his pair of mules. After this cleaning up, which is the real dirty and oily part of his week's work, the spinner takes his dirty overalls home and returns on Monday morning with a clean pair. These facts are fully detailed in my thesis, as also the fact that by chemical analysis, while oil was determined to be present in the areas mentioned, no oil was found within the scrotal area. Scrotal sweat was, however, found by analysis in the fork area of overalls.

Reviewing all these facts, it cannot, in my opinion, be contended that because Dr. Leitch produced epithelioma under laboratory conditions upon mice with oil that similar laboratory conditions obtain in the mill under ordinary working conditions. Further, if this oil was cancerogenous, as the men work in bare feet, which are permanently oily, and under friction afterwards in their oily socks, there would be cases of epithelioma of the feet. I have heard of no such case amongst spinners, although I have seen several cases of epithelioma of the feet. Further, there are mills in Lancashire where women have always been employed as spinners, and no case of vulvar epithelioma is recorded. Neither does the oil theory explain the fact that 84 per cent. of these epitheliomas occupy an exactly similar site, the remaining 16 per cent. occurring upon a second specific site, as stated and explained in my thesis.

*Chronic Irritation from Clothing.*

Many observations which I have made since confirm my then stated opinion—namely, that the cause of spinners' scrotal cancer is due to the friction of the fork of the hard blue or white overall acting upon the scrotum each time the spinner leans over the faller shaft to piece, the fork being pulled up by the stretching movements of the body required by the piecing operation acting upon an inelastic brace. The aniline dye which stains the legs and scrotum, and the dirt on the latter, are aggravating factors. I suggest that the hard rough open seam at the overall fork produced irritation 200 to 240 times an hour 5½ days per week upon the scrotum at the specific sites of this disease, according to the spinner's reach in piecing his broken end. There are certain facts in the Committee's report which support my contention.

[1] THE LANCET, 1926, i., 874.
[2] Brit. Med. Jour., 1922, ii., 971.

*Geographical Distribution of Scrotal Cancer Cases collected from 1876 Onwards.*

| District. | Spinners. | | Ex-spinners in other occupations. | | Total. | Rate per 1000. |
|---|---|---|---|---|---|---|
| | Scrotum. | Other parts of the skin. | Scrotum. | Other parts of the skin. | | |
| Oldham (8131) .. .. | 160 | 39 | 26 | 4 | 229 | *20* |
| Bolton (3900) .. .. | 57 | 12 | 11 | — | 80 | *15* |
| Ashton-under-Lyne (2740) | 25 | 8 | 11 | 2 | 46 | *9* |
| Rochdale (1702) .. .. | 22 | 3 | 3 | 1 | 29 | *13* |
| Wigan (1272) .. .. | 8 | 6 | 1 | — | 15 | *6* |
| Preston (113) .. .. | 19 | 1 | 4 | — | 24 | *17* |
| Blackburn (974) .. .. | 44 | 3 | 4 | 2 | 53 | *45** |
| Stockport (788) .. .. | 7 | 1 | 4 | — | 12 | *9* |
| Halifax (698) .. .. | 5 | 2 | 1 | — | 8 | *7* |
| Manchester (548).. .. | 11 | 2 | 2 | 1 | 16 | *20* |
| Burnley (427) .. .. | 18 | 2 | 2 | — | 22 | *42** |
| Huddersfield (320) .. | 4 | — | — | — | 4 | *12* |
| Keighley (56) .. .. | 1 | — | — | — | 1 | *18* |
| Total (22,699) .. | 381 | 79 | 69 | 10 | 539 | — |

The districts marked with * changed to rough blue overalls about 1905, the other districts changed to rough white about 1905, but adopted the blue about 1917.

It will be noticed that the italicised figures (which have been added by me) in column 7 of the accompanying table giving the rate per 1000 spinners employed show a heavier rate in the Blackburn and Burnley areas. It was in these two areas only that the wearing of blue overalls commenced in 1905. Other areas did not adopt blue until 1917, but from about 1905 wore white overalls made of the same material in all respects except colour. The question does arise as to whether the aniline dye in the blue overalls added to the friction of the overall fork accounts in some measure for the increased incidence in these two areas. I stress the fact that the fustian overall was discarded in 1905 by some 90 per cent. of spinners, the present-day rough cotton material being used since that date. The very few cases of scrotal epithelioma during the years prior to 1905 and for some years afterwards did not exceed the average rate for the general population.

The Report states (p. 5): "We have also made some inquiries abroad as to whether there is evidence of a similar incidence amongst cotton mule-spinners, but, so far, replies from France, Germany, Russia, Poland, and America have led to entirely negative results. This is a little difficult to explain, but it must be borne in mind that the number of mule spindles in Great Britain is very much greater than the number in any other single country, that the number of persons employed abroad is consequently less, and that the number of cases likely to occur annually, if at all, would be very small."

The explanation I suggest for the absence of the disease in mule-spinners in the foreign countries mentioned is the fact that in those countries braces are not worn, but a belt only.

*American Experience.*

My theory has received confirmation from the following commentary added by Dr. Derric C. Parmenter to my article upon Spinners' Cancer in the *Journal of Industrial Hygiene* (June, 1927):—

"So far as I have been able to discover, cancer of the scrotum is relatively rare in the United States. Cases have been reported among men working with tar and with the paraffin oils, but these cases are few and not well defined. There seems to be very few recorded cases of cancer which are directly traceable to the cotton trades, such as spinners' scrotal cancer. This may be due to: (1) lack of observation heretofore; (2) the tendency of mill hands in the South to wear trousers with belts rather than shoulder-strap overalls; (3) the general tendency of mill hands in the North, the majority of whom wear overalls, to wear also some sort of underclothing.

"Any of these factors would undoubtedly tend to reduce the occurrence of anything like the spinners' cancer as discussed in Dr. Robertson's article. In Massachusetts at the present time an intensive study of cancer is being conducted by the State authorities, with special reference to its ætiology. This investigation should call attention to any types of cancer which may be of industrial origin. As yet, however, no definite conclusions have been reached."

*Association with Ichthyosis.*

After an address I gave to the Pathological Society at Manchester on spinners' scrotal cancer, Dr. L. Savatard showed a case of this disease, the patient also suffering from ichthyosis. We arranged to carry out some further investigations along this line, and Dr. Savatard permits me to publish the following extract from a paper he read to the Section of Dermatology, R.S.M., in May last:—

"What is the relative frequency of ichthyosis? It is apparently fairly common in Lancashire, but its incidence may vary in different parts of the country. In an examination of 400 operatives I have found a 5 per cent. incidence. Through the kindness of Dr. Robertson I have recently been afforded the opportunity of inspecting 400 mule-spinners at work. Their ages ranged from 15 years to 65 years and the duration of their occupation from two days to 50 years. I found 20 affected with ichthyosis. In ten the affection was slight and in the other ten the condition was well marked. Of these, two had suffered from scrotal cancer. Three presented keratotic lesions on the face and temporal regions. I saw no such lesions in the non-ichthyotic; hyperkeratosis of the palms was seen only in the ichthyotics. I could find no evidence of any dermatosis of an occupational character, unless it be two cases of mild folliculitis of the arms in two youths who were also affected with ichthyosis.

"As a result of this investigation I believe that ichthyosis is an important ætiological factor in mule-spinners' cancer. Though I do not deny that scrotal cancer does arise apart from ichthyosis, I am convinced that the great majority of such patients will give evidence of an ichthyotic skin.

"It is not my purpose to discuss the cause of scrotal cancer, but I would express my regret that the Departmental Committee as a result of its inquiry in 1925 should have found that 'in the absence of exposure to mineral oils there would be no mule-spinners' cancer.' I cannot help thinking that this conclusion was premature. Dr. Robertson, in a careful inquiry into this subject, comes to a very different conclusion."

*Conclusion.*

The experience gained in visiting a large number of mills makes me entirely agree with the Committee that much can be attained by regular medical inspection and advice. I am further of opinion that such inspection would rapidly secure personal hygiene amongst spinners, and this in itself would tend to lessen the incidence of this serious disease.

I also strongly recommend that braces should be discarded, and that belts be worn, and further, that the spinner should wash his thighs and scrotum with soap and water every night. By these means I am confident that this disease would be conquered.

## IMMUNISATION AGAINST DIPHTHERIA.

AT a recent meeting of the Baby Week Council, Prof. H. R. Kenwood, who presided, maintained that diphtheria would be comparatively rare if children were to obtain the protection which immunisation by toxin-antitoxin provided. The method was no longer experimental, but had been tested and found capable of producing excellent results. Dr. C. C. Okell said that by means of the Schick test and active immunisation, diphtheria could be prevented with practical certainly, whilst Dr. R. A. O'Brien considered that the goal to be aimed at was the simultaneous protection of children against both diphtheria and scarlet fever by two small injections which would not interfere with their ordinary health and activity, or at most would cause slight discomfort for a day. Dr. C. W. Hutt stated that immunisation against diphtheria had been done at a maternity and child welfare centre in Holborn since 1922. In Edinburgh immunisation was carried out in well-organised institutions, such as public elementary schools; administration was thus facilitated and the machinery for gaining the parents' consent was simple. It would be a great step forward if the London County Council authorise similar measures, for the method would then become favourably known to parents, and they would bring an increasing number of young children to the welfare centres.

Dr. C. S. Thomson communicated a paper dealing with the persuasion of the public. The administrative officer, he said, must be a whole-hearted enthusiast—"a tearing if not a raging propagandist"—and the man who performed the actual tests and inoculation must be a lover of children and kindly disposed. In Deptford he had written articles and reports on the subject for his public health committee, had distributed numerous leaflets in the district, and had organised a meeting at the town hall, for teachers, parents, and councillors, where the Mutual Property Insurance Company's film, "The Risk of Diphtheria Banished," had been shown. When a child received its first inoculation he was careful to give the parents a form showing that protection did not take effect for six or eight months after the third and last injection. Parents ought to watch the tests and immunisation to see how simple they were, whilst the best propaganda could be done by interviewing parents whose children had contracted the disease.

Dr. C. T. Maitland described his recent experience at Stoke Newington, where he had had more applicants for immunisation than he could deal with in the time available for this work.